DOCUMENT RESUME

ED 087 909 CE 001 001

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TITLE Canadian Occupational Groups.
INSTITUTION Training Research and Development Station, Prince Albert (Saskatchewan).
PUB DATE Nov 73
NOTE 555p.

EDRS PRICE MF-$0.90 HC-$27.00
DESCRIPTORS Career Ladders; *Catalogs; Certification; Employment Qualifications; Foreign Countries; Job Analysis; *Occupational Clusters; Occupational Guidance; *Occupational Information; Vocational Aptitude
IDENTIFIERS *Canada

ABSTRACT

Based upon the structure of Canadian Classification and Dictionary of Occupations, the volume presents highly condensed descriptions of classification clusters representing the universe of occupational groups in the Canadian economy. It is a useful tool for vocational counselors, students, and clients. Each cluster is assigned a number; the clusters are then listed in numerical order. An alphabetical index of clusters provides a second access route. The information provided for each of the approximately 350 clusters is presented in six sections. The Work Performed Section includes a lead statement and an explanation of the work functions and activities performed in the cluster. The Aptitudes and Capacities Section develops the aptitude ratings and capacity ratings (physical activities and environmental conditions) presented in the Qualifications Profile Section. In that section, aptitude, temperament, and interest factors are considered. The Training and Entry Requirements Section alerts people to special cluster requirements. The Advancement and Transfer Possibilities Section provides examples for the occupations, not necessarily for an individual. Finally, the arrangement of occupations within a cluster is listed in the List of Occupational Titles Section. (AG)

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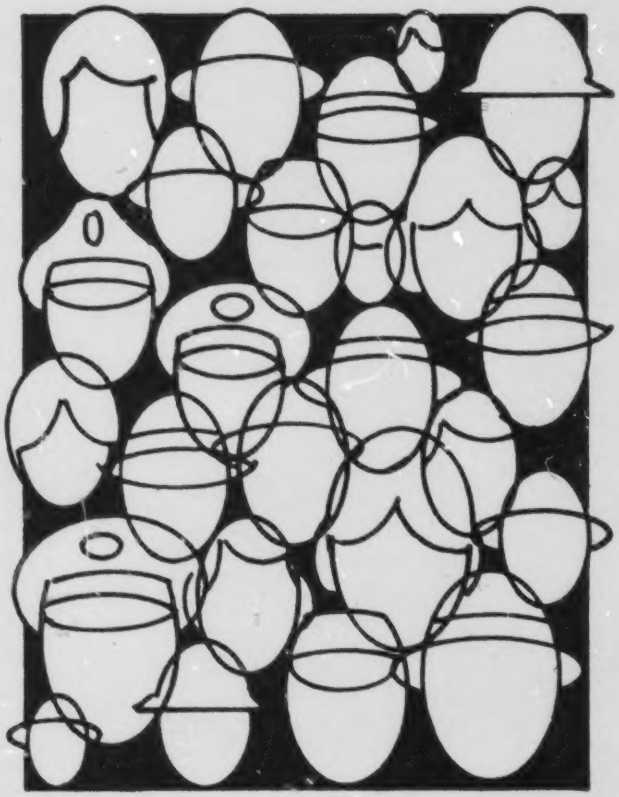
CANADIAN OCCUPATIONAL GROUPS



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CE 001 001

Training Research and Development Station
Centre de recherche et développement de formation

Manpower and Immigration
Main-d'oeuvre et Immigration

CANADIAN
OCCUPATIONAL
GROUPS

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Published by Saskatchewan NewStart Inc.,
for the Training Research and Development Station

Printed in Canada
By Modern Press
Saskatoon, Sask.

FOREWORD

Adults as well as adolescents must make career decisions and do so several times during their lives. An appropriate decision can only be made with knowledge of oneself, the world of work and the labour market and with the skills of decision making. *Canadian Occupational Groups* was prepared to help describe the nature of the work performed in major job groups and the characteristics of people successfully employed in those occupations.

Canadian Occupational Groups contains descriptions of 508 occupational clusters, each characterized by a unique qualifications profile of aptitudes, interests and temperaments. These 508 clusters were selected from the *Canadian Classification and Dictionary of Occupations, Volume 2, Occupational Qualification Requirements, 1973.*

Canadian Occupational Groups was produced under the direction of L. G. Tippett, who also selected the clusters. Editing and composing was done principally by P. L. Olexyn. Acknowledgement is also due to the researchers and authors who prepared the *Canadian Classification and Dictionary of Occupations, Volume 2, Occupational Qualification Requirements* was prepared by the Department of Manpower and Immigration under the direction of J. E. Andoff. Research studies and qualifications profiles were developed under the direction of R. A. Weeks. Training and entry requirements advice was provided by W. Coe. The remainder of each chapter was written and prepared for publication under the direction of F. F. Doherty.

Editing and preparation for printing of *Canadian Occupational Groups* was a project of the Adult Development Division of the Training Research and Development Station. This book was published for the Station by Saskatchewan NewStart, Inc., with funds provided by the Department of Regional Economic Expansion. The Training Research and Development Station is engaged in the development of new methods of training and counseling adults.

D. Stuart Conger, Director
Training Research and Development Station

November, 1973

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INTRODUCTION

The process of making a career decision is a complex one. Indeed, no single theory seems to be universally applicable to all people. There is an increasing amount of evidence, however, that there are several basic factors which appear to be critical in many career choice situations. These factors are a knowledge of one's self, a knowledge of the world of work and skills of making decision. Vocational guidance programs, therefore, should include experiences to develop and apply skills associated with these factors.

Beginning in late 1972, the Training Research and Development Station began development of curriculum materials for use in vocational guidance programs. One result of this activity is a program called *Creating A Career*. *Creating A Career* is an instructional system which utilizes a variety of strategies and materials which provide experiences for the student to assess personal aptitudes, interests and temperaments, to learn about the world of work, to set personal and occupational goals and to develop job search skills.

With the production of the *Canadian Classification And Dictionary Of Occupations, Volume 1, Classification And Definitions* and *Volume 2, Occupational Qualification Requirements*, a structure of the Canadian world of work was provided and qualification factors were identified and defined. Counsellors in Canadian schools, colleges, Canada Manpower Centres and other agencies now have a uniform framework of occupational descriptions and qualification requirements. Employers and occupational researchers can also use this structure in various ways. The *CCDO* was chosen as the basis for the selection and production of materials for occupational information for *Creating A Career*.

Having chosen this structure and evaluated and selected several sources of occupational information, an accessing system was required which would allow for a wide ranging exploration of the world of work, but at the same time, would direct the students' efforts by identifying appropriate occupational groupings for study. The accessing problem was solved by using a manual keysorting technique. This technique uses cards which have the qualifications factors of aptitudes, interests and temperaments punched on the perimeter with the appropriate variable for the cluster being "notched" out. "Sorting" by using a rod through the punched holes for a given qualification factor then, means that all cards not having that given factor are pulled away. Information edited from *Volume 2* chapters is printed on the cards.

The preparation of the manual keysort cards required an editing, and reorganization of format from *Volume 2* of the *CCDO* to achieve a smaller number of clusters and so that the information could be contained on one side of an 8 ½ x 11 sheet. Having completed this editing and composing, it was expected that a bound volume of the same sheets would be useful as a companion to the cards and also by itself as a reference to the 508 clusters. In addition to the 508 occupational clusters, which are chapters or split chapters from *CCDO, Volume 2*, much of the introduction of *Volume 2* has been reproduced here as a guide to interpretation and arrangement of data.

Canadian Occupational Groups, while providing highly condensed descriptions of occupational clusters, does provide a comprehensive coverage of the world of work. Being based on the *CCDO* structure, which is in turn derived from an organization and description of work in the economy, the clusters are free of many of the biases which are often found in occupational information materials which are selected by or directed toward a particular group. The clusters, therefore, represent the universe of occupational groups in the economy. The book then, is a catalogue of the world of work suitable for use by counsellors, students and clients. The factors in the qualification profiles can be used as access variables simply by visual examination of one or more factors matched against given personal traits. The "Numerical List Of Cluster Titles" (page xiii), can also be used to identify specific clusters by general work titles. In addition, Appendix A, "Alphabetical Index Of Clusters" provides an alphabetical list of clusters with titles cross-referenced by the various descriptors included in the cluster titles.

FEATURES OF THE CLASSIFICATION

The *CCDO, Volume 1, Classification And Definitions*, provides a systematic classification structure in which all occupations in the Canadian economy can be categorized. This structure comprises a series of 23 Major Groups, 81 Minor Groups and 498 Unit Groups with which over 14,300 occupational titles have been classified in increasingly broader fields of work. Of these, more than 6,700 occupations are defined as base titles. This structure lends itself to a numbering system with wide utility. Each occupation has a unique occupational code number which is descriptive of its place in the classification. For example, 6116-126 FIRE FIGHTER, the number indicates the following: Major Group is 61 (the first two digits); Minor Group is 611 (first three digits); and the Unit Group is 6116 (first four digits). The 126 is unique to FIRE FIGHTER within Unit Group 6116. The Unit Groups (see page iv) are the bases for the chapters in *CCDO, Volume 2, Occupational Qualification Requirements*.

SELECTION AND CHARACTERISTICS OF THE CLUSTERS

Beginning on page iii, the characteristics of *Volume 2* data are outlined in detail. The selection of clusters, editing of content and display format in this book, differ in a number of ways from that in *Volume 2:*

1. General Selections: Only CHAPTERS were selected. GROUPS were omitted. (For definition of "chapter" and "group", see "Presentation Of Data", page iv.)

2. Selection of Clusters: A CLUSTER consists of a number of occupations having the same or similar significant aptitude, interest and temperament ratings with similar levels of education and training. Many chapters have more than one cluster. Because each manual keysort card was designed for a single occupational profile, chapters have to be separated into these clusters. After separation, a selection was made on the following criteria:

   a. At least one cluster would be selected from each chapter;

   b. Clusters would be selected so that access to all clusters would be achieved.

3. Inclusion of Worker Function Designations: "Worker Function Designations" are a measure of the ways the worker relates to data, people and things in the occupation. In addition to being a standardized terminology for use in summarizing what a worker does in the job through the use of appropriate and meaningful verbs descriptive of the basic work performed, occupations tend to cluster on "data, people, things" functions. Therefore, the "data, people, things" (DPT) designations (see Appendix A, "Worker Functions In Relation To Data, People And Things") for each cluster were identified from *CCDO, Volume 1, Classification And Definitions* and included in the information for each cluster. The DPT designation is printed on the upper right near the title of each cluster.

CHARACTERISTICS OF THE DATA

The data was selected and organized in a manner similar in content and organization found in *CCDO, Volume 2*. The principal difference, except for editing and format changes to describe individual clusters, is that "Clues For Relating Persons To Occupational Requirements" and "Other Clues And Requirements" were omitted entirely. The characteristics of the data in *CCDO, Volume 2* follows.

The Coding System

One of the outstanding features of the Canadian Classification and Dictionary of Occupations is the multipurpose nature of its design. The 23 major groups, 81 minor groups and 498 unit groups in Volume I provide a considerable degree of homogeneity for groups of occupations. Volume II essentially takes the CCDO occupational structure at the unit group level and develops these groups of occupations in such a way as to delineate the qualifications that are required of a worker for satisfactory performance of the work described in each group. With the exception of a number of special arrangements, the four-digit code numbers used in Volume I are used to introduce the same group of occupations in Volume II. This use of common code numbers forms the basis for a simple and effective cross-reference system.*

Presentation of Data

Volume I unit groups, which contain occupations that are homogeneous in terms of work performed, frequently become chapters in Volume II. A CHAPTER is primarily based on one or more homogeneous clusters of occupations. A CLUSTER consists of a number of occupations having the same or similar *significant* aptitude, interest and temperament ratings with similar levels of education and training. The chapter format contains narrative sections which explain the data contained in the qualifications profile(s). A QUALIFICATIONS PROFILE is simply a summary of the qualification requirements for a cluster of occupations or in some instances a single occupation.

Volume I unit groups, which contain occupations that are somewhat heterogeneous in terms of work performed (usually residual groups), are designated simply as groups in Volume II. The GROUP format is easily recognized since each occupational title is listed with its own individual qualifications profile. A brief introductory statement on the work performed is the only narrative description found in the group format.

Chapter Format

Depending on the nature of the data, chapters consist of the following sections:

I WORK PERFORMED
II LIST OF OCCUPATIONAL TITLES
III QUALIFICATIONS PROFILES
IV APTITUDES AND CAPACITIES
V TRAINING AND ENTRY REQUIREMENTS
VI ADVANCEMENT AND TRANSFER POSSIBILITIES
VII CLUES FOR RELATING PERSONS TO OCCUPATIONAL REQUIREMENTS
VIII OTHER CLUES AND REQUIREMENTS

I WORK PERFORMED SECTION

This section introduces the reader to the variety of work performed in the occupations comprising the chapter. The order of appearance of the narrative data in the WORK PERFORMED SECTION is as follows:

A. Lead Statement
B. Worker Functions
C. Work Activities

A. Lead Statement

The lead statement summarizes in general terms what the workers do, the material and equipment used, and products made or services rendered.

B. Worker Functions

The worker functions narrative expresses what the workers' relationships are in terms of the Data, People, and Things concept used in the CCDO. A detailed explanation of this concept is contained on pages 1169-1171 of Volume I. The arrangement of the worker functions is based on their significance in the number of occupations forming the chapter. Their descriptions utilize key words from the actual definition of each individual worker function.

C. Work Activities

The work activities narrative provides added information on such subjects as work fields, materials and equipment, products made, services rendered or key duties involved in the occupations.

II LIST OF OCCUPATIONAL TITLES SECTION

Titles

The purpose of this section is to indicate the arrangement of the occupations within a chapter. In many cases, the base titles appear in a different order than in Volume I unit groups. The arrangement of occupations into clusters is clearly indicated by letters of the alphabet. *Related titles* shown in Volume I are omitted from this section since it is difficult to accurately rate occupations which have no definitions. *Alternate titles* shown in Volume I are also omitted since they stand for the same work performed as the base titles. *Seven-digit residual-group titles* are omitted since they cannot be rated for the factors normally assigned to base titles. Also, *dual occupational titles* involving the work of couples are not shown.

Transfers

Occasionally, occupations have been transferred from their original unit groups in Volume I because their qualifications requirements are similar to those of occupations in another chapter of Volume II. The transferred occupation is inserted into the List of Occupational Titles according to the complexity of education and training and bears its original seven-digit code number followed by the letter "T". The transfer of an occupation from its original unit group in Volume I is shown at the end of the List of Occupational Titles of the chapter from which it has been deleted through the use of abbreviation "N.B." followed by an explanation. The following partial List of Occupational Titles illustrates transfer actions:

		GED	SVP
8581-182	**AUTOMOBILE WRECKER** (motor vehicle)	3	4*
8581-184	**GLASS INSTALLER** (motor vehicle)	3	4
8511-122T	**CLUTCH REBUILDER** (motor vehicle)	3	3
8581-186	**MUFFLER INSTALLER** (motor vehicle)	2	4

N.B. Occupation 8581-130 SHOP ESTIMATOR (motor vehicle) has been transferred, for Volume II purposes, to Chapter 8586, INSPECTING AND TESTING OCCUPATIONS, EQUIPMENT REPAIR, N.E.C.

GED and SVP

Occasionally there will be changes in General Educational Development (GED) and Specific Vocational Preparation (SVP) ratings for Volume II purposes. These changes will be indicated on the List of Occupational Titles by an asterisk (*) which is placed after the appropriate GED or SVP digit. See the above illustration. The GED and SVP ratings will not normally be shown on the List of Occupational Titles for chapters dealing with supervisor or foreman occupations, since most of these occupations were not originally rated for GED or SVP in Volume I.

III QUALIFICATIONS PROFILE(S) SECTION

Categories of Data

The QUALIFICATIONS PROFILE is a method of summarizing the qualification requirements for a cluster of occupations or a single occupation in terms of aptitude levels, physical activities, environmental conditions, general educational development, specific vocational preparation and interest and temperament ratings. The following headings are used to introduce each category of data in the qualifications profiles.

Aptitudes	PA	EC	GED	SVP	Ints.	Temps.
G V N S P Q K F M E C						

Each category of data shown in the qualifications profile is dealt with separately in the explanatory material that follows:

Aptitude Factors and Definitions

Over the years it has been demonstrated that certain aptitudes are important in job success. For CCDO purposes APTITUDES are defined as the specific capacity or potentiality required of an individual in order to facilitate the learning of the skills needed for a task or job duties. Eleven aptitude factors are used in estimating the level of aptitude required by an individual for *average, satisfactory work performance.*

G. Intelligence

General learning ability. The ability to "catch on" or understand instructions and underlying principles. Ability to reason and make judgments.

V. Verbal

Ability to understand meanings of words and ideas associated with them, and to use them effectively. To comprehend language, to understand relationships between words and to understand meanings of whole sentences and paragraphs. To present information or ideas clearly.

N. Numerical

Ability to carry out arithmetic processes quickly and accurately.

S. Spatial

Ability to think, visually of geometric forms and to comprehend the two dimensional representation of three-dimensional objects. The ability to recognize the relationships resulting from the movement of objects in space. May be used in such tasks as blueprint reading and in solving geometry problems. Frequently described as the ability to "visualize" objects of two or three dimensions, or to think visually of geometric forms.

P. Form Perception

Ability to perceive pertinent detail in objects, or in pictorial or graphic material. To make visual comparisons and discriminations and see slight differences in shapes and shadings of figures and widths and lengths of lines.

Q. Clerical Perception

Ability to perceive pertinent detail in verbal or tabular material. To observe differences in copy, to proofread words and numbers, and to avoid perceptual errors in arithmetic computation.

K. Motor Coordination

Ability to coordinate eyes and hands or fingers rapidly and accurately in making precise movements with speed. Ability to make a movement response accurately and quickly.

F. Finger Dexterity

Ability to move the fingers, and manipulate small objects with the fingers, rapidly or accurately.

M. Manual Dexterity

Ability to move the hands easily and skilfully. To work with the hands in placing and turning motions.

E. Eye-Hand Foot Coordination

Ability to move the hand and foot coordinately with each other in accordance with visual stimuli. (Not measured by GATB.)

C. Colour Discrimination

Ability to perceive or recognize similarities or differences in colours, or in shades or other values of the same colour. To identify a particular colour, or to recognize harmonious or contrasting colour combinations, or to match colours accurately. (Not measured by GATB).

Aptitude Rating System

The following scale is used:

Level

1. The highest 10% of the working population
2. The upper third, exclusive of the highest 10%
3. The middle third of the working population
4. The lowest third, exclusive of the lowest 10%
5. The lowest 10% of the working population.

Five levels are provided for each aptitude with the exception of Intelligence (G), which reflects only four levels. Although many jobs require no more Intelligence than that possessed by the lowest 10% of the working population, it is felt that reliable ratings cannot be made for that level of the Intelligence factor without actually testing individuals in the occupation.

Interpretation of Aptitude Ratings

A sample aptitude profile which would normally form part of an entire qualifications profile for a cluster of occupations is included here to aid the reader in understanding the explanatory material that follows:

Sample Aptitude Profile

G	V	N	S	P	Q	K	F	M	E	C
3	4	4	$\underline{4}$	$\underline{3}$	5	$\underline{3}$	4	$\underline{3}$	5	5
4		5		$\underline{4}$	4		$\underline{3}$			4
										3

Significant Aptitudes

Aptitude Factor S-Spatial Perception has a single rating at Level 4. The underlining of an aptitude rating simply indicates that the aptitude is considered *significant* for satisfactory job performance. Aptitude Factor P-Form Perception is shown with two ratings, one is at Level 3 and the other at Level 4. Both levels of aptitude are shown as significant for satisfactory job performance and are necessary because of the range of occupations in a cluster.*

Multiple Ratings for Individual Aptitude Factors

Frequently there will be more than one rating shown under an aptitude factor. As the number and complexity of occupations in a cluster increase so the probability of two or more ratings for the same aptitude factor also increases. As a general rule, the first rating shown under the aptitude factor indicates that the *majority* of occupations in the cluster are at the level of the first rating. In the Sample Aptitude Profile the majority of occupations are at Level 3 for P-Form Perception, while the *minority* of occupations are at Level 4. In Aptitude Factor C-Colour Discrimination, there are three ratings with Level 3 appearing as the last. This last rating indicates that colour discrimination is considered significant for very few occupations in the cluster. These occupations would normally be identified separately in the narrative of the APTITUDES AND CAPACITIES SECTION immediately following the QUALIFICATIONS PROFILES SECTION.

Ranked Ratings

In the Sample Aptitude Profile, Aptitude Factor F-Finger Dexterity has two ratings which are not arranged in numerical order. The rating of Level 4 appears before the rating of Level 3. This arrangement of ratings is called **RANKING** in the CCDO and indicates that the majority of occupations are rated at Level 4 and the minority are at Level 3.

The last example illustrates why in Volume II one speaks of the majority of occupations always being in the first level with other levels signifying the ratings for a minority of occupations. ***Therefore, the reader should not assume that the order of the ratings corresponds to the order of complexity shown in the title arrangement on the LIST OF OCCUPATIONAL TITLES.***

Arrangement of Multiple Clusters

In many chapters there will be more than one cluster. Each cluster of occupations has its own qualifications profile. These profiles are normally arranged within a chapter in a descending order of complexity in terms of aptitude requirements.

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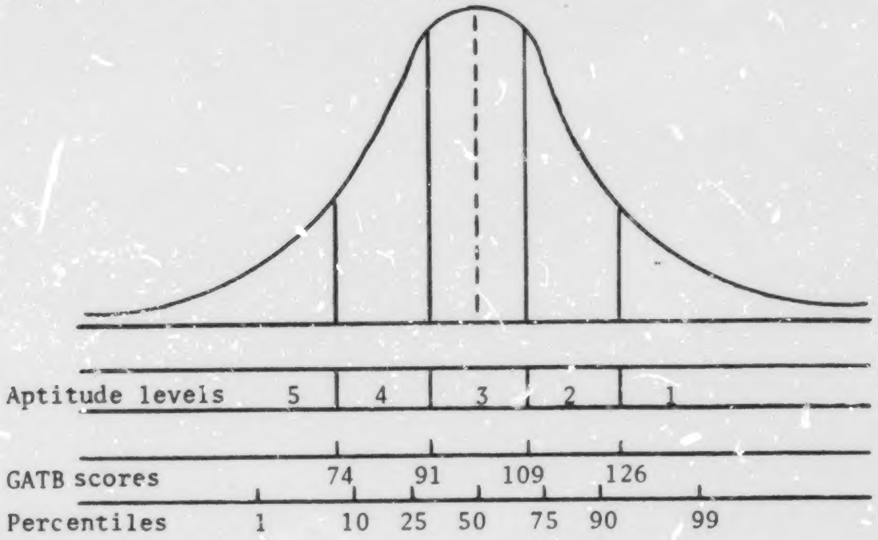
* **Level 5 has been assigned when an occupational definition does not reveal the need for a particular aptitude or where an aptitude appears negligible. This procedure ensured the meaningfulness of Level 4 ratings.**

Relationship of Levels to Scores

The aptitude levels shown in the qualifications profiles can be related to the scores obtained from the General Aptitude Test Battery (GATB). The individual aptitude test results from GATB are reported in standard scores. Using standard scores and percentile ranks (rarely used in GATB), the five levels can be shown graphically.

The reader should exercise caution in making statistical inferences from this data. The CCDO ratings ***should not*** be used as cut-off points for rejection, or acceptance of individuals. However, these estimates provide generalizations of the levels of ability required in an occupation.



The relationship between CCDO aptitude levels, GATB aptitude scores, percentiles, and a hypothetical normal distribution with a mean of 100 and a standard deviation of 20.

Physical Activities and Environmental Conditions

In CCDO Volume I CLASSIFICATION AND DEFINITIONS, most of the individual occupational definitions are rated for Physical Activities (PA) and Environmental Conditions (EC). These designations appear as code letters and digits directly above the occupational definitions.

In CCDO Volume II – OCCUPATIONAL QUALIFICATION REQUIREMENTS, these same designations appear in the qualifications profiles. In the case of a Volume II chapter with a single or multiple cluster arrangement the Physical Activity ratings indicate the physical capacities a worker must have to meet the requirements of occupations in a cluster. Likewise, the Environmental Conditions ratings indicate the conditions to which a worker must adapt in order to meet the requirements of the same cluster of occupations. An example of a profile for a chapter with two clusters is shown to aid the reader in the interpretation of the ratings.

Clusters	PA	EC
A	L-H 34567	I-B 57
	L-H 347	I-B 5
	B H 3456	B 56

Interpretation of PA and EC Ratings

The PA and EC ratings for clusters are expressed as a range of ratings and are simply in the same order as they appear on a PA and EC table. In some cases, a cluster will have more than one set of ratings. In the example shown, Cluster A has two sets of PA ratings. As a general rule, the first set (L-H 34567) indicates the ratings for occupations found in the *upper half* of Cluster A, while the second set (L-H 347) indicates the ratings found in the *lower half* of Cluster A. If the reader wishes to find the exact PA or EC ratings for a particular title he simply locates its 7-digit code number on the LIST OF OCCUPATIONAL TITLES appearing before the qualifications profiles and locates the same 7-digit title in Volume I where the PA and EC ratings for individual occupations are found. In the Volume II "Group" treatment the PA and EC ratings are already shown opposite the individual occupational titles.

A detailed explanation of the code letters and digits for PA and EC ratings can be found in CCDO Volume I, pp. 1165-1168.

General Educational Development and Specific Vocational Preparation

In CCDO Volume I – CLASSIFICATION AND DEFINITIONS, most of the individual occupational definitions are also rated for General Educational Development

(GED) and Specific Vocational Preparation (SVP). These designations appear as digits directly above the occupational definitions.

Interpretation of Ratings

In CCDO Volume II – OCCUPATIONAL QUALIFICATION REQUIREMENTS, ratings for GED and SVP are presented in the qualifications profiles. In the Chapter format with a single or multiple cluster arrangement, GED ratings are normally shown as a *range*; for example, 4-3 (12 to 9 years of education). Likewise, SVP ratings are also shown in terms of a range; for example, 8-5 (over 4 years to over 6 months of training). In the Group format, however, there will normally be only one rating for GED and SVP respectively, since each occupation has its own qualifications profile. A detailed explanation of the digits used for GED and SVP ratings can be found in Volume I, pp. 1161-1163. A *different* interpretation of GED in terms of years of schooling is shown in the following table.

General Educational Development Table

Levels	Approximate Duration of Schooling
6.	17 years plus
5.	13 to 16 years
4.	11 to 12 years
3.	9 to 10 years
2.	7 to 8 years
1.	Up to and including 6 years

Specific Vocational Preparation Table

Levels

1. Short Demonstration only.
2. Anything beyond short demonstration up to and including 30 days.
3. Over 30 days up to and including 3 months.
4. Over 3 months up to and including 6 months.
5. Over 6 months up to and including 1 year.
6. Over 1 year up to and including 2 years.
7. Over 2 years up to and including 4 years.
8. Over 4 years up to and including 10 years.
9. Over 10 years.

Interest Factors and Definitions

Numerous studies in psychology have indicated that there is a significant correlation between job satisfaction and a positive interest in a type of work. For CCDO purposes an "interest" is defined as a tendency to become absorbed in an experience through concern in or attraction for certain types of work activities or experiences with accompanying rejection of contrary types of activities or experiences. There are five pairs of interest factors provided so that a positive concern for one factor of a pair usually implies rejection of the other factor of that pair.

The following table of interest factors is used:

1.	Dealing with things and objects.	vs.	6.	Dealing with people and communicating ideas.
2.	Business contact with people.	vs.	7.	Scientific and technical work.
3.	Routine, concrete and organized work.	vs.	8.	Abstract and creative work or experiences.
4.	Working for people for their presumed good as in the social welfare sense, or for dealing with people and language in social situations.	vs.	9.	Non-social work, carried on in relation to processes, machines, and techniques.
5.	Work resulting in prestige or the esteem of others.	vs.	0.	Work leading to satisfaction from tangible results.

Temperament Factors and Definitions

Different occupations call for different temperament traits just as they call for different aptitudes. For CCDO purposes "temperament" is defined as those personality qualities which remain fairly constant and reveal a person's characteristic response in terms of a preference, inclination, or disposition. The CCDO evaluates temperament traits through the use of twelve factors which are defined in terms of *work situations* which are thought to be indicative of the type of temperamental adjustment required or which require the worker to possess certain temperament qualities. The following list illustrates the work situations used:

1. A variety of duties often characterized by frequent change.
2. Repetitive or short-cycle operations carried out according to set procedures or sequences.
3. Doing things only under specific instruction, allowing little or no room for independent action or judgment in working out job problems.
4. The direction, control, and planning of an entire activity or the activities of others.
5. Dealing with people in actual job duties, beyond giving and receiving instructions.
6. Working alone and apart in physical isolation from others, although activity may be integrated with that of others.
7. Influencing people in their opinions, attitudes, or judgments about ideas or things.
8. Performing adequately under stress when confronted with the critical or unexpected or taking risks.
9. The evaluation (arriving at generalizations, judgments, or decisions) of information against sensory or judgmental criteria.
10. The evaluation (arriving at generalizations, judgments, or decisions) of information against measurable or verifiable criteria.

X. The interpretation of feelings, ideas, or facts in terms of personal viewpoint.

Y. The precise attainment of set limits, tolerances, or standards.

Interpretation of Interest and Temperament Ratings

A partial interests and temperaments profile for a chapter with three clusters is presented to aid the reader in the interpretation of the ratings.

Clusters	Ints.	Temps.
A	910	0Y1
	91	0Y
B	91	0Y
C	913	0Y2

Only the most significant interests and temperaments are rated for a cluster of occupations or in some cases a single occupation. These ratings are arranged in an order of significance and reflect an overall pattern for the occupations in a cluster. Individual occupations within a cluster may require a different order of significance, depending on the nature of the work performed. A minimum of two interest ratings is normally required for each cluster. In some cases, as in Cluster A, there will be two sets of interest or temperament ratings. As a general rule, the first set (910 and 0Y1) indicate the ratings for occupations found in the upper half of a cluster which normally have higher GED and SVP ratings while the second set (91 and 0Y) indicates the ratings for occupations found in the lower half of the cluster which normally have lower GED and SVP ratings.

The reader will arrive at a better understanding of the occupations in a cluster by *viewing the interest and temperament ratings together since they are designed to complement each other.* The interest and temperament pattern for Cluster A is quite different from that shown for Cluster C. For example, Interest Factor 3 (routine and organized work) and Temperament Factor 2 (repetitive or short-cycle operations) presents an image of Cluster C which is not reflected in Clusters B or A. In Cluster A the Interest Factor 0 (tangible, productive satisfaction) and Temperament Factor 1 (variety of duties and frequent change) indicate a different pattern than that found in Cluster C, despite the common interest ratings of 91 and common temperament ratings of 0Y. This example illustrates the meaningfulness of clusters and alerts the counsellor to differences which he must consider when assessing the advancement possibilities or suitability of a client within the work area represented by the entire chapter.

In the "Group" format for occupations in Volume II, interest and temperament ratings are shown for each occupation. The differences between separate occupations are readily apparent.

IV APTITUDES AND CAPACITIES SECTION

Organization of Data

This section develops the aptitude ratings and capacities ratings (physical activities and environmental conditions) contained in the qualifications profile of a chapter.

A statement is developed for the significant aptitudes in the order of their appearance in the qualifications profile. In some instances, a single statement may describe more than one aptitude.

Aptitude Factor G-Intelligence is always described whether it is significant or not and illustrates the appropriate level of learning ability required. The statement usually embraces the level of complexity described in the related General Educational Development scale.

The examples used to illustrate a significant aptitude usually apply to the majority of occupations in the cluster being described. When there is an aptitude which is of considerable significance for only one or two occupations in a cluster it may be described separately. The reader should note that not all of the occupations in a cluster necessarily have all the requirements recorded in the qualification profiles. When in doubt the reader should refer to the occupational definition in Volume I for additional guidance.

When there are two or more profiles which show the same significant aptitude factors at similar levels and with similar capacities, these factors are generally described in common statements. When two or more clusters have numerous different significant aptitudes and capacities they are described separately for each cluster.

In order to avoid needless repetition, physical activity statements such as those for handling have frequently been combined with aptitude statements for aptitude factors K, F or M. When a physical activity is not related to a significant aptitude it is described separately. Statements on environmental conditions are general and apply to the entire cluster although some statements have been prepared for conditions peculiar to one or two single occupations within a cluster.

The occupational definitions in CCDO Volume I generally describe in broad terms the duties of a variety of similar jobs found in many establishments. *The reader is cautioned not to consider these occupational definitions as job descriptions which apply specifically to a particular job in an establishment.* In some instances, the reader may have to mentally adjust certain aptitude ratings in the qualifications profile to coincide with the requirements of an establishment job. In CCDO Volume I, for example, an occupational definition for a production worker may receive a significant rating for form perception because there are duties involving visual inspections of finished products. In an actual plant situation an inspector may perform these duties which would reduce the significance of form perception for the production worker.

Many Volume I occupational definitions contain "may clauses" which appear as the last statements in a definition. These "may clauses" were not considered when the aptitude, interest and temperament ratings were established for an occupation. These clauses, however, may actually apply to a particular job in an establishment thus necessitating changes in the significant aptitude ratings. In CCDO Volume II, for example, occupation **8526-110 FINAL INSPECTOR, TRUCK TRAILER**, is rated at Level 5 for Aptitude Factor E (eye-hand-foot co-ordination). A "may clause" in the occupational definition itself, states that vehicles may be road tested. If this statement applies to an employer's requirements then the rating should be adjusted to at least Level 3 and would be significant.

Special Treatment for Aptitude Factor C – Colour Discrimination

In some cases the reader does not know the precise interpretation of the physical activities rating of 7 (seeing) because it covers the following items:

- acuity far,
- acuity near, (often linked with Aptitude P)
- depth perception, (often linked with Aptitude S)
- accommodation
- field of vision
- colour vision (often linked to Aptitude C)

To assist the reader in interpreting the colour vision rating covered by PA7, Level 4 of Aptitude C has been used to indicate the presence of colour vision and Level 5 means that it is negligible or absent.

Colour vision is interpreted at Level 4 under Aptitude C to mean only the capacity to identify and distinguish basic colours such as red, blue, green or yellow.

Aptitude Factor C – *Colour Discrimination* begins, for CCDO purposes, at Level 3, where it means the ability to match colours, and distinguish different shades of the same colours.

Colour discrimination at levels 2 and 1 means the ability to recognize similarities or differences in colours, or in shades or other values of the same colour coupled with the ability to recognize harmonious or contrasting colour combinations and to match colours accurately.

In summary, the CCDO reserves levels 1-3 for colour discrimination, Level 4 for good colour vision and Level 5 as negligible or absent.

V TRAINING AND ENTRY REQUIREMENTS SECTION

Organization of Data

The purpose of this section is to amplify the General Educational Development (GED) and Specific Vocational Preparation (SVP) data shown in the qualifications profiles and to alert the reader to the existence of certain requirements such as licensing, certification or registration which may exist for a number of occupations in the chapter. The usual methods of entry are outlined but may be subject to Collective Agreements between the employer and union or trade association. Occasionally entry may be regulated by a fixed proportion between learners or apprentices and the qualified journeymen. The statements in this section are of a general nature, since in many instances, the requirements vary from province to province. The statements usually cover a number of occupations in a cluster and therefore cannot be too specific for any particular occupation. The reader should supplement his knowledge of the training and entry requirements for specific occupations by obtaining appropriate career publications covering provincial requirements for individual occupations.

Normally the training and entry requirements data is dealt with separately for each cluster of occupations. The required body of knowledge is briefly indicated as well as training programs, licensing, certification, registration and experience. At times the occupational knowledge required may be covered in more detail in the description of Aptitude Factor G – Intelligence, in the APTITUDES AND CAPACITIES SECTION.

VI ADVANCEMENT AND TRANSFER POSSIBILITIES SECTION

Organization of Data

The purpose of this section is to give examples of advancement and transfer possibilities for *occupations* classified in CCDO Volume I. Whether or not an *individual* can advance or transfer depends on his own abilities, personality, policies of the establishment, collective agreements and many other factors. Advancement and transfer possibilities are dealt with separately for each cluster shown in the QUALIFICATIONS PROFILE SECTION. Where it is advantageous, there are statements that are common to more than one cluster.

Advancement

Advancement, for CCDO purposes, means being raised in position, rank, class or grade within the particular occupational field. It includes a higher level of responsibility with increased skills, where remuneration is usually increased; for example,

Typist 2 to Typist 3
Tool-and-Die Maker to Tool Design Technician
Welder Arc to Welder, Combination, Welding Technician or
Welding Foreman

Advancement data is given only in the broadest of terms because this type of movement depends almost entirely on the policy of the establishment.

In using the data in this section the reader should first have read the Volume I definition of the occupation under consideration before reading the qualifications profiles for other occupations in the same or other chapters.

Transfers

Transfer for CCDO purposes, means moving from one occupation to another occupation in related or different fields of work, where skills and knowledges learned in the first occupation can be applied *without the need of extensive training*. Transfers do not necessarily have to be at the same level of salary. For example, an unemployed chemical engineer who has been working with polymers may transfer to work with textiles; or a tool and die maker may do the work of a machinist. A welder could become a welding equipment salesman or a welding inspector, if he has the required aptitudes, interests, temperaments, further training and certification.

The emphasis in the narrative description on transfer possibilities is on *transfer from occupation to occupation* regardless of the type of establishment or industry. When transfer possibilities are limited this is stated. It cannot be assumed that a person will be given credit toward particular apprenticeship requirements if he has been engaged in a similar or related type of work. For example, if a person has worked as a make-up man in a printing shop, it may be wrong to assume that his time will be credited toward an apprenticeship program for compositors. The minimum acceptable educational requirements must be considered when suggesting advancement and transfer possibilities from occupations in one cluster to occupations in another cluster or even within the same cluster. Transfers are often limited to other occupations in the same cluster because of the specialized nature of the work.

NUMERICAL LIST OF CLUSTER TITLES

	1113	Government Administrators
*	1115	Postmasters
	1116	Inspectors and Regulatory Officers, Government
	1119	Officials and Administrators Unique to Government, n.e.c.
*	1130	General Managers and Other Senior Officials
	113/114	Other Managers and Administrators (except Chapter 1130)
*	1171	Accountants, Auditors and Other Financial Officers
*	1173	Organization and Methods Analysts
*	1174	Personnel and Related Officers
*	1175	Purchasing Officers and Buyers, Except Wholesales and Retail Trade
	1176	Inspectors and Regulatory Officers, Non-Government
	1179	Occupations Related to Management and Administration, n.e.c.
*	2111	Chemists
*	2112	Geologists and Related Occupations
*	2113	Physicists
*	2114	Meteorologists
*	2117	Physical Sciences Technologists and Technicians
	2119	Occupations in Physical Sciences, n.e.c.
*	2131	Agriculturists and Related Scientists
*	2133	Biologists and Related Scientists
*	2135	Life Sciences Technologists and Technicians
	2139	Occupations in Life Sciences, n.e.c.
*	2141	Architects
*	214/215A	Research, Design and Development Engineers (except Chapter 2141)
*	214/215B	Production, Construction, Installation, Operation and Maintenance Engineers (except Chapter 2141)
*	214/215C	Industrial and Environmental Engineers (except Chapter 2141)
*	2160	Supervisors, Other Occupations in Architecture and Engineering
*	2161	Surveyors
*	2163	Draughtsmen
*	2165	Architectural and Engineering Technologists and Technicians
	2169	Other Occupations in Architecture and Engineering, n.e.c.
*	2181	Mathematicians, Statisticians and Actuaries
*	2183	Systems Analysts, Computer Programmers and Related Occupations
	2189	Occupations in Mathematics, Statistics, Systems Analysis and Related Fields, n.e.c.
*	2311	Economists
*	2313	Sociologists, Anthropologists and Related Social Scientists
*	2315	Psychologists

* Clusters described. For others see *Canadian Classification And Dictionary Of Occupations, Volume 2, Occupational Qualification Requirements, 1973.*

	2319	Occupations in Social Sciences, n.e.c.
★	2331	Social Workers
★	2333A	Occupations in Community and Recreational Services
★	2333B	Social-Services Assistants
	2339	Occupations in Social Work and Related Fields, n.e.c.
★	2341	Judges and Magistrates
★	2343	Lawyers and Notaries
	2349	Occupations in Law and Jurisprudence, n.e.c.
	2350	Supervisors: Occupations in Library, Museum and Archival Sciences
★	2351	Librarians and Archivists
★	2353	Technicians in Library, Museum and Archival Sciences
	2359	Occupations in Library, Museum and Archival Sciences, n.e.c.
★	2391	Educational and Vocational Counsellors
	2399	Other Occupations in Social Sciences and Related Fields, n.e.c.
★	2511	Ministers of Religion
	2519	Occupations in Religion, n.e.c.
★	2711	University Teachers
	2719	University Teaching and Related Occupations, n.e.c.
★	2731	Elementary and Kindergarten Teachers
★	2733	Secondary School Teachers
★	2791	Community College and Vocational School Teachers
★	2792	Fine Arts Teachers
	2793	Post-Secondary School Teachers, n.e.c.
	2795	Teachers of Exceptional Students, n.e.c.
★	2797A	Flying Instructors
	2797B	Instructors and Training Officers, n.e.c.
	2799	Other Teaching and Related Occupations, n.e.c.
★	3111	Physicians and Surgeons
★	3113	Dentists
★	3115	Veterinarians
★	3117	Osteopaths and Chiropractors
	3119	Health Diagnosing and Treating Occupations, n.e.c.
★	3130	Supervisors, Nursing Occupations
★	3131	Nurses, Graduate, Except Supervisors
★	3134	Nursing Assistants
★	3135	Nursing Aides and Orderlies
★	3137	Physiotherapists, Occupational and Other Therapists
	3139	Nursing, Therapy and Related Assisting Occupations, n.e.c.
★	3151	Pharmacists
★	3152	Dietitians and Nutritionists
★	3153	Optometrists

★	3154	Dispensing Opticians
★	3155	Radiological Technologists and Technicians
★	3156	Medical Laboratory Technologists and Technicians
★	3157	Dental Hygienists, Assistants and Technicians
	3159	Other Occupations in Medicine and Health, n.e.c.
★	3311	Painters, Sculptors and Related Artists
★	3313	Product and Interior Designers
★	3314	Advertising and Illustrating Artists
★	3315A	Photographers and Cameramen
	3315B	Other Photographers and Cameramen
	3319	Occupations in Fine and Commercial Art, Photography and Related Fields, n.e.c.
★	3330	Producers and Directors, Performing and Audiovisual Arts
★	3332A	Conductors and Instrumentalists
★	3332B	Choirmasters and Singers
★	3332C	Composers, Arrangers and Related Occupations
★	3333	Choreographers and Dancers
★	3335	Actors
★	3337	Radio and Television Announcers
	3339	Occupations in Performing and Audiovisual Arts, n.e.c.
★	3351	Writers and Editors, Publication
★	3353	Writers and Editors: Radio, Television, Theatre and Motion Pictures
★	3355	Translators and Interpreters
	3359	Occupations in Writing, n.e.c.
★	3710	Coaches, Trainers, Instructors and Managers, Sport and Recreation
	3711	Referees and Related Officials
★	3713	Athletes
	3715	Attendants, Sport and Recreation
	3719	Occupations in Sport and Recreation, n.e.c.
★	410	Clerical Supervisors (includes 4110, 4130, 4140, 4150, 4160, 4170, 4190)
★	4111	Secretaries and Stenographers
★	4113	Typists and Clerk-Typists
★	4131	Bookkeepers and Accounting Clerks
★	4133	Tellers and Cashiers
★	4135	Insurance, Bank and Other Finance Clerks
★	4137	Statistical Clerks
	4139	Bookkeeping, Account-Recording and Related Occupations, n.e.c.
★	4141	Office Machine Operators
★	4143	Electronic Data-Processing Equipment Operators
★	4151	Production Clerks
★	4153	Shipping and Receiving Clerks
★	4155	Stock Clerks and Related Occupations

★ 4157	Weighers
4159	Material Recording, Scheduling and Distributing Occupations, n.e.c.
★ 4161A	Medical-Record Librarians
★ 4161B	Library and File Clerks
4169	Library, File and Correspondence Clerks and Related Occupations, n.e.c.
★ 4171	Receptionists and Information Clerks
★ 4172	Mail Carriers
★ 4173	Mail and Postal Clerks
★ 4175	Telephone Operators
★ 4177	Messengers
4179	Reception, Information, Mail and Message Distribution Occupations, n.e.c.
★ 4191	Collectors
★ 4192	Adjusters, Claim
★ 4193	Travel Clerks, Ticket, Station and Freight Agents
★ 4194	Hotel Clerks
★ 4195	Personnel Clerks
★ 4197	General Office Clerks
4199	Other Clerical and Related Occupations, n.e.c.
★ 510	Managing Supervisors and Supervisors, Sales Occupations (includes 5130, 5170, 5190)
★ 5131	Technical Salesmen and Related Advisers
★ 5133	Commercial Travellers
★ 5135	Salesmen and Salespersons, Commodities, n.e.c.
5137	Sales Clerks, Commodities
★ 5141	Street Vendors and Door-to-Door Salesmen
5143	Newsboys
★ 5145	Service Station Attendants
5149	Sales Occupations, Commodities, n.e.c.
★ 5171	Insurance Salesmen and Agents
★ 5172	Real Estate Salesmen
★ 5173	Salesmen and Traders, Securities
★ 5174	Advertising Salesmen
★ 5177	Business Services Salesmen
5179	Sales Occupations: Services, n.e.c.
★ 5191	Buyers, Wholesale and Retail Trade
★ 5193	Driver-Salesmen
5199	Other Sales Occupations, n.e.c.
★ 610	Managing Supervisors and Supervisors, Service Occupations (includes 6120, 6130, 6160, 6190)
★ 6111	Fire-Fighting Occupations
★ 6112	Policemen and Detectives, Government
★ 6113	Policemen and Investigators, Private

* 6115A	Correctional Officers and Matrons
* 6115B	Guards and Watchmen
6119	Protective Service Occupations, n.e.c.
* 6121	Chefs and Cooks
* 6123	Bartenders
* 6125	Waiters, Hostesses and Stewards, Food and Beverage
✓ 6129	Food and Beverage Preparation and Related Service Occupations, n.e.c.
* 6133	Chambermaids and Housemen
* 6135	Sleeping-Car and Baggage Porters, and Bellmen
6139	Occupations in Lodging and Other Accommodation, n.e.c.
* 6141	Funeral Directors, Embalmers and Related Occupations
* 6143	Barbers, Hairdressers and Related Occupations
* 6144	Guides
* 6145	Hostesses and Stewards, Except Food and Beverage
* 6147	Babysitters
6149	Personal Service Occupations, n.e.c.
* 6161	Laundering Occupations
* 6163	Dry-Cleaning Occupations
* 6165	Pressing Occupations
6169	Apparel and Furnishings Service Occupations, n.e.c.
* 6191	Janitors, Charworkers and Cleaners
* 6193	Elevator-Operating Occupations
* 6198	Occupations in Labouring and Other Elemental Work, Services
6199	Other Service Occupations, n.e.c.
* 711A	Farmers
* 711B	Breeders, Small Domestic Animals
* 7131	Farm Management Occupations
* 7181	General Workers, Farm
* 7183	Field Crop and Vegetable-Growing Workers
* 7185	Orchard, Vineyard and Related Tree and Shrub-Crop Workers
* 7187A	Horsemen
* 7187B	Livestock Workers
* 7191	Dairy Workers, Farm
* 7193	Poultry Workers, Farm
* 7195	Nursery and Related Workers
* 7197	Farm-Machinery Operators and Custom Operators
* 7198	Occupations in Labouring and Other Elemental Work: Farming, Horticulture and Animal Husbandry
* 7199A	Animal Care Occupations, n.e.c.
7199B	Other Farming, Horticultural and Animal-Husbandry Occupations, n.e.c.
* 7311	Captains and Other Officers, Fishing Vessels
* 7313	Fishermen: Net, Trap and Line

★ 7315	Hunting, Trapping and Related Occupations
7319	Fishing, Hunting, Trapping and Related Occupations, n.e.c.
★ 7511	Forestry Conservation Occupations
★ 7513	Timber Cutting and Related Occupations
★ 7516	Log Inspecting, Grading, Scaling and Related Occupations
★ 7517	Log Hoisting, Sorting, Moving and Related Occupations
★ 7518	Occupations in Labouring and Other Elemental Work, Forestry and Logging
★ 7711	Rotary Well-Drilling and Related Occupations
★ 7713	Other Rock and Soil Drilling Occupations
★ 7716	Blasting Occupations
★ 7717	Mining and Quarrying: Cutting, Handling and Loading Occupations
★ 7718	Occupations in Labouring and Other Elemental Work, Mining and Quarrying Including Oil and Gas Fields
7719	Mining and Quarrying Including Oil and Gas Field Occupations, n.e.c.
★ 8111	Crushing and Grinding Occupations, Mineral Ores
★ 8113	Mixing, Separating, Filtering and Related Occupations, Mineral Ores
★ 8115	Melting and Roasting Occupations, Mineral Ores
★ 8116	Inspecting, Testing, Grading and Sampling Occupations, Mineral Ore Treating
★ 8118	Occupations in Labouring and Other Elemental Work, Mineral Ore Treating
8119	Mineral Ore Treating Occupations, n.e.c.
★ 8131	Metal Smelting, Converting and Refining Furnacemen
★ 8133	Metal Heat-Treating Occupations
★ 8135	Metal Rolling Occupations
★ 8137	Moulding, Coremaking and Metal Casting Occupations
★ 8141	Metal Extruding and Drawing Occupations
★ 8143	Plating, Metal Spraying and Related Occupations
★ 8146	Inspecting, Testing, Grading, and Sampling Occupations, Metal Processing
★ 8148	Occupations in Labouring and Other Elemental Work, Metal Processing
8149	Metal Processing and Related Occupations, n.e.c.
★ 8151	Furnacemen and Kilnmen: Clay, Glass and Stone
★ 8153	Separating, Crushing, Grinding and Mixing Occupations: Clay, Glass and Stone
★ 8155A	Forming Occupations, Clay
★ 8155B	Forming Occupations, Glass
★ 8155C	Forming Occupations, Stone
★ 8156	Inspecting, Testing and Grading Occupations: Clay, Glass and Stone Processing and Forming
★ 8158	Occupations in Labouring and Other Elemental Work: Clay, Glass and Stone Processing and Forming
8159	Clay, Glass and Stone Processing, Forming and Related Occupations, n.e.c.
★ 8161	Mixing and Blending Occupations, Chemicals and Related Materials
★ 8163	Filtering, Straining and Separating Occupations, Chemicals and Related Materials
★ 8165	Distilling, Subliming and Carbonizing Occupations, Chemicals and Related Materials
★ 8167	Roasting, Cooking and Drying Occupations, Chemicals and Related Materials

*	8171	Crushing and Grinding Occupations, Chemicals and Related Materials
*	8173	Coating and Calendering Occupations, Chemicals and Related Materials
*	8176	Inspecting, Testing and Sampling Occupations: Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing
*	8178	Occupations in Labouring and Other Elemental Work: Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing
	8179	Chemicals, Petroleum, Rubber, Plastic and Related Materials Processing Occupations, n.e.c.
*	8211	Flour and Grain Milling Occupations
*	8213	Baking, Confectionery Making and Related Occupations
*	8215	Slaughtering and Meat Cutting, Canning, Curing and Packing Occupations
*	8217	Fish Canning, Curing and Packing Occupations
*	8221	Fruit and Vegetable Canning, Preserving and Packing Occupations
*	8223	Milk Processing and Related Occupations
*	8225	Sugar Processing and Related Occupations
*	8226	Inspecting, Testing, Grading and Sampling Occupations: Food, Beverage and Related Processing
*	8227	Beverage Processing Occupations
*	8228	Occupations in Labouring and Other Elemental Work: Food, Beverage and Related Processing
	8229	Food, Beverage and Related Processing Occupations, n.e.c.
*	8231	Sawmill Sawyers and Related Occupations
*	8233	Plywood Making and Related Occupations
*	8235	Wood Treating Occupations
*	8236	Inspecting, Testing and Grading Occupations: Wood Processing, Except Paper Pulp
*	8238	Occupations in Labouring and Other Elemental Work: Wood Processing, Except Paper Pulp
*	8239	Wood Processing Occupations, Except Paper Pulp, n.e.c.
*	8251	Cellulose Pulp Preparing Occupations
*	8253	Papermaking and Finishing Occupations
*	8256	Inspecting, Testing, Grading and Sampling Occupations, Pulp and Papermaking
*	8258	Occupations in Labouring and Other Elemental Work, Pulp and Papermaking
	8259	Pulp and Papermaking and Related Occupations, n.e.c.
*	8261	Textile Fibre Preparing Occupations
*	8263	Textile Spinning and Twisting Occupations
*	8265	Textile Winding and Reeling Occupations
*	8267	Textile Weaving Occupations
*	8271	Knitting Occupations
*	8273	Textile Bleaching and Dyeing Occupations
*	8275	Textile Finishing and Calendering Occupations
*	8276	Inspecting, Testing, Grading and Sampling Occupations, Textile Processing
*	8278	Occupations in Labouring and Other Elemental Work, Textile Processing
	8279	Textile Processing Occupations, n.e.c.
*	8293	Tobacco Processing Occupations
*	8295	Hide and Pelt Processing Occupations
*	8296	Inspecting, Testing, Grading and Sampling Occupations, Processing, n.e.c.

★ 8298	Occupations in Labouring and Elemental Work, Other Processing
8299	Other Processing Occupations, n.e.c.
★ 8311	Tool-and-Die Making Occupations
★ 8313	Machinist and Machine-Tool Setting-Up Occupations
★ 8315	Machine-Tool Operating Occupations
★ 8316	Inspecting and Testing Occupations, Metal Machining
8319	Metal Machining Occupations, n.e.c.
★ 8331	Forging Occupations
★ 8333	Sheet-Metal Workers
★ 8334	Metalworking-Machine Operators, n.e.c.
★ 8335	Welding and Flame Cutting Occupations
★ 8336	Inspecting and Testing Occupations, Metal Shaping and Forming, Except Machining
★ 8337	Boilermakers, Platers and Structural-Metal Workers
8339	Metal Shaping and Forming Occupations, Except Machining, n.e.c.
★ 8351	Wood Patternmaking Occupations
★ 8353	Wood Sawing and Related Occupations, Except Sawmill
★ 8355	Planing, Turning, Shaping and Related Wood Machining Occupations
★ 8356	Inspecting Occupations, Wood Machining
★ 8357	Wood Sanding Occupations
8359	Wood Machining Occupations, n.e.c.
★ 8371	Cutting and Shaping Occupations: Clay, Glass, Stone and Related Materials
★ 8373A	Abrading and Polishing Occupations: Stone, Cement, Abrasives and Clay
★ 8373B	Abrading, Polishing and Coating Occupations: Optical Elements
★ 8373C	Abrading and Polishing Occupations: Flat-Glass and Glassware
★ 8376	Inspecting Occupations: Clay, Glass, Stone and Related Materials Machining
8379	Clay, Glass, Stone and Related Materials Machining Occupations, n.e.c.
★ 8391	Engravers, Etchers and Related Occupations
★ 8393	Filing, Grinding, Buffing, Cleaning and Polishing Occupations, n.e.c.
8395	Patternmakers and Mouldmakers, n.e.c.
8399	Other Machining and Related Occupations, n.e.c.
★ 8511	Engine and Related Equipment Fabricating and Assembling Occupations, n.e.c.
★ 8513	Motor Vehicle Fabricating and Assembling Occupations, n.e.c.
★ 8515	Aircraft Fabricating and Assembling Occupations, n.e.c.
★ 8523	Industrial, Farm, Construction and Other Mechanized Equipment and Machinery Fabricating and Assembling Occupations, n.e.c.
★ 8525	Business and Commercial Machines Fabricating and Assembling Occupations, n.e.c.
★ 8526	Inspecting and Testing Occupations, Fabricating and Assembling Metal Products, n.e.c.
★ 8527	Precision Instruments and Related Equipment Fabricating and Assembling Occupations, n.e.c.
8529	Other Fabricating and Assembling Occupations, Metal Products, n.e.c.
★ 8531	Electrical Equipment Fabricating and Assembling Occupations
★ 8533	Electrical and Related Equipment Installing and Repairing Occupations, n.e.c.
★ 8534	Electronic Equipment Fabricating and Assembling Occupations

★ 8535	Electronic and Related Equipment Installing and Repairing Occupations, n.e.c.
★ 8536	Inspecting and Testing Occupations: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment
★ 8537	Radio and Television Service Repairmen
★ 8538	Occupations in Labouring and Other Elemental Work: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment
8539	Fabricating, Assembling, Installing and Repairing Occupations: Electrical, Electronic and Related Equipment, n.e.c.
★ 8541	Cabinet and Wood Furniture Makers
★ 8548	Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing, Wood Products
8549	Fabricating, Assembling and Repairing Occupations: Wood Products, n.e.c.
★ 8551	Patternmaking, Marking and Cutting Occupations: Textile, Fur and Leather Products
★ 8553	Tailors and Dressmakers
★ 8555	Furriers
★ 8557	Milliners, Hat and Cap Makers
★ 8561	Shoemaking and Repairing Occupations
★ 8562	Upholsterers
★ 8563	Sewing Machine Operators, Textile and Similar Materials
★ 8566	Inspecting, Grading and Sampling Occupations: Fabricating, Assembling, and Repairing, Textile, Fur and Leather Products
★ 8568	Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing, Textile, Fur and Leather Products
8569	Fabricating, Assembling and Repairing Occupations: Textile, Fur and Leather Products, n.e.c.
★ 8571	Bonding and Cementing Occupations, Rubber, Plastic and Related Products
★ 8573	Moulding Occupations, Rubber, Plastic and Related Products
★ 8575	Cutting and Finishing Occupations, Rubber, Plastic and Related Products
★ 8576	Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling and Repairing, Rubber, Plastic and Related Products
★ 8578	Occupations in Labouring and Other Elemental Work: Fabricating, Assembling and Repairing, Rubber, Plastic and Related Products
8579	Fabricating, Assembling and Repairing Occupations, Rubber, Plastic and Related Products, n.e.c.
★ 8581	Motor-Vehicle Mechanics and Repairmen
★ 8582	Aircraft Mechanics and Repairmen
★ 8583	Rail Transport Equipment Mechanics and Repairmen
★ 8584	Industrial, Farm and Construction Machinery Mechanics and Repairmen
★ 8585	Business and Commercial Machine Mechanics and Repairmen
★ 8586	Inspecting and Testing Occupations, Equipment Repair, n.e.c.
★ 8587	Watch and Clock Repairmen
★ 8588	Precision-Instrument Mechanics and Repairmen
8589	Other Mechanics and Repairmen, n.e.c.
★ 8591	Jewellery and Silverware Fabricating, Assembling and Repairing Occupations
★ 8592A	Shipbuilding Occupations

★	8592B	Marine Craft Mechanics
★	8592C	Boatbuilding Occupations
	8592D	Marine Craft Occupations, n.e.c.
★	8593	Paper Product Fabricating and Assembling Occupations
★	8595	Painting and Decorating Occupations, Except Construction
	8596	Inspecting, Testing and Grading Occupations: Product Fabricating, Assembling and Repairing, n.e.c.
★	8598	Occupations in Labouring and Other Elemental Work: Product Fabricating, Assembling and Repairing, n.e.c.
★	8599A	Musical Instrument Fabricating, Assembling and Repairing Occupations, n.e.c.
	8599B	Other Product Fabricating, Assembling and Repairing Occupations, n.e.c.
★	8711	Excavating, Grading and Related Occupations
★	8713	Paving, Surfacing and Related Occupations
★	8715	Railway Sectionmen and Trackmen
★	8718	Occupations in Labouring and Other Elemental Work: Excavating, Grading and Paving
	8719	Excavating, Grading, Paving and Related Occupations, n.e.c.
★	8731	Electrical Power Linemen and Related Occupations
★	8733	Construction Electricians and Repairmen
★	8735	Wire Communications and Related Equipment Installing and Repairing Occupations
★	8736	Inspecting and Testing Occupations: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing
★	8739	Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing Occupations, n.e.c.
★	8781	Carpenters and Related Occupations
★	8782	Brick and Stone Masons and Tile Setters
★	8783	Concrete Finishing and Related Occupations
★	8784	Plasterers and Related Occupations
★	8785	Painters, Paperhangers and Related Occupations
★	8786	Insulating Occupations, Construction
★	8787	Roofing, Waterproofing and Related Occupations
★	8791	Pipefitting, Plumbing and Related Occupations, n.e.c.
★	8793	Structural-Metal Erectors
★	8795	Glaziers
★	8796	Inspecting and Testing Occupations, Construction, Except Electrical
★	8798	Occupations in Labouring and Other Elemental Work, Other Construction Trades
★	8799A	Elevator Installers and Repairmen
★	8799B	Furnace Installers and Repairmen
★	8799C	Commercial and Industrial Air-Conditioning and Refrigeration Mechanics
★	8799D	Floor Surfacers
	8799E	Other Construction Trades, n.e.c.
★	9111	Air Pilots, Navigators and Flight Engineers
★	9113	Air Transport Operating Support Occupations

9119	Air Transport Operating Occupations, n.e.c.
★ 9131	Locomotive Engineers and Firemen
★ 9133	Conductors and Brakemen, Railway
★ 9135	Railway Transport Operating Support Occupations
9139	Railway Transport Operating Occupations, n.e.c.
★ 9151	Deck Officers
★ 9153	Engineering Officers, Ship
★ 9155A	Ship's Carpenters
★ 9155B	Deck Crew, Ship
★ 9157	Engine and Boiler-Room Crew, Ship
9159	Water Transport Operating Occupations, n.e.c.
★ 9171	Bus Drivers
★ 9173	Taxi Drivers and Chauffeurs
★ 9175	Truck Drivers
9179	Motor Transport Operating Occupations, n.e.c.
★ 9191	Subway and Street Railway Operating Occupations
★ 9193	Motormen and Dinkeymen, Except Railway Transport
9199	Other Transport and Related Equipment Operating Occupations, n.e.c.
★ 9311	Hoisting Occupations, n.e.c.
★ 9313	Longshoremen, Stevedores and Freight Handlers
★ 9315	Material-Handling Equipment Operators, n.e.c.
★ 9317	Packaging Occupations, n.e.c.
★ 9318	Occupations in Labouring and Other Elemental Work, Material-Handling, n.e.c.
9319	Other Material-Handling and Related Occupations, n.e.c.
★ 9511	Typesetting and Composing Occupations
★ 9512	Printing Press Occupations
★ 9513	Stereotyping and Electrotyping Occupations
★ 9514	Printing-Engraving, Except Photoengraving Occupations
★ 9515	Photoengraving and Related Occupations
★ 9517	Bookbinding and Related Occupations
★ 9518	Occupations in Labouring and Other Elemental Work, Printing and Related Activities
9519	Printing and Related Occupations, n.e.c.
★ 9531	Power Station Operators
★ 9533	Stationary Engine and Auxiliary Equipment Operating and Maintaining Occupations
★ 9535	Water and Sanitation Utilities Equipment Operating Occupations
★ 9537	Pumping and Pipeline Equipment Operating Occupations
★ 9551	Radio and Television Broadcasting Equipment Operators
★ 9553	Telegraph Operators
★ 9555	Sound and Video Recording and Reproduction Equipment Operators
★ 9557	Motion-Picture Projectionists
9559	Electronic and Related Communications Equipment Operating Occupations, n.e.c.

★ 9591	Photographic Processing Occupations
9599	Miscellaneous Crafts and Equipment Operating Occupations, n.e.c.
★ 990	Foremen Occupations
9916	Inspecting, Testing, Grading and Sampling Occupations, n.e.c.

OCCUPATIONAL

CLUSTER DESCRIPTIONS

(The following clusters are listed numerically. An Alphabetical Index is provided in Appendix A. The reader wishing to look up an occupation by the title should refer to the Alphabetical Index.)

1115 - POSTMASTERS

118, 138

WORK PERFORMED: This chapter includes occupations concerned with carrying out managerial and administrative activities in a post office, or providing postal services in a metropolitan or rural postal area. Worker functions include: co-ordinating procedures to implement policies and directives of senior management; negotiating with representatives of industrial and business organizations and other levels of government to resolve matters relating to postal operations, services and programs; and supervising the training and development programs of post office staff. Work activities include: planning, organizing, directing and controlling the activities of post offices and mail services in an urban or rural area; investigating complaints and irregularities in postal services and determining corrective measures; and enforcing postal regulations.

APTITUDES AND CAPACITIES: Postmasters require: learning ability to understand and apply postal regulations and procedures, and to make administrative decisions, and judgments concerning the interpretation and implementation of postal regulations; verbal ability to express ideas clearly in written or oral form especially when conferring with the public, addressing business meetings, conducting negotiations on behalf of the post office department, and conducting training seminars; numerical ability to administer the financial operations of a post office, prepare financial statements and estimates, and control numerical records; clerical perception to note pertinent detail in instructions and regulations, and to avoid errors in financial estimates and reports.

TRAINING AND ENTRY REQUIREMENTS: Postmasters within the Federal Public Service normally require: completion of secondary school education; plus four to ten years of experience in various occupations in a post office. Those who operate post offices in conjunction with another business normally are required to provide proof of competence in postal services and no minimum training requirements are stipulated.

ADVANCEMENT POSSIBILITIES: Postmasters with sufficient managerial experience may advance to POSTAL AREA MANAGER.

TRANSFER POSSIBILITIES: Transfers may be to 1116-110 SUPERVISOR, INSPECTORS AND REGULATORY OFFICERS and to 1116-142 POSTAL-SERVICE INSPECTOR.

OCCUPATIONAL TITLES:

1115-110 POSTAL AREA MANAGER	1115-114 POSTMASTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	4	4	2 3	4	4	4	5	5	S56	I	4	8-7	265	45901

1130 - GENERAL MANAGERS AND OTHER SENIOR OFFICIALS

WORK PERFORMED: This chapter includes occupations concerned with planning, organizing, directing and controlling the major functions of an industrial, commercial or other establishment, enterprise or organization, on owner's or own behalf. Worker functions include: synthesizing production reports, and data involving economic, social, technical and legal trends, to discover facts and develop management concepts; and consulting with subordinate managers and executives to formulate organizational policies and programs. Work activities include: establishing organization objectives; approving budget allocations; authorizing establishment of major departments and key executive positions; selecting or approving selection of departmental managers and senior staff; delegating authority and approving overall personnel program; directing, motivating and developing skills of executive and managerial personnel to foster productivity, growth and good morale; and co-ordinating activities of various departments or organizational units.

APTITUDES AND CAPACITIES: General Managers and other Senior Officials require: learning ability to acquire a knowledge of, and apply various management concepts and practices to plan, organize and direct the overall activities of an enterprise, establishment or organization; verbal ability to communicate effectively with persons at all levels, both orally and in writing, when consulting with subordinate managers and executives, representing organizations in negotiations or sitting on committees; numerical ability to analyse economic trends, and prepare or review budget estimates; clerical perception to discern pertinent detail in verbal or tabular materials, such as reports, financial statements, charts or graphs or correspondence.

TRAINING AND ENTRY REQUIREMENTS: General Managers and other Senior Officials normally require: university graduation in the arts, sciences, engineering or education, depending on the occupation; and four to five years experience at the middle-management level; OR secondary school graduation; and ten or more years of middle-management experience supplemented by part-time studies in the specialty.

ADVANCEMENT POSSIBILITIES: Advancement opportunities are very limited for General Managers and other Senior Officials, since they have normally reached the highest plateau within an organization. However, some senior executives could be appointed to a company's board of directors, or to chairman of the board. Other officials may accept senior posts in larger organizations for more remuneration, or head their own firms. Some senior administrators such as 1130-110 CHIEF EXECUTIVE, EDUCATION, 1130-114 HOSPITAL ADMINISTRATOR and 1130-126 GENERAL MANAGER, FINANCE may be appointed to such positions as president, or deputy minister in government. See 1113-110 EXECUTIVE ADMINISTRATOR, GOVERNMENT AGENCIES and 1113-114 EXECUTIVE ADMINISTRATOR, GOVERNMENT DEPARTMENT.

TRANSFER POSSIBILITIES: General Managers and other Senior Officials could transfer to parallel positions in similar establishments or in government. See 1113-118 SENIOR ADMINISTRATOR, GOVERNMENT AGENCIES and 1113-122 SENIOR ADMINISTRATOR. GOVERNMENT DEPARTMENT.

OCCUPATIONAL TITLES:

1130-110	CHIEF EXECUTIVE, EDUCATION	1130-130	GENERAL MANAGER, PRODUCTION
1130-114	HOSPITAL ADMINISTRATOR	1130-134	GENERAL MANAGER, SALES AND ADVERTISING
1130-118	CHIEF EXECUTIVE, NATURAL SCIENCES AND ENGINEERING	1130-138	GENERAL MANAGER, SERVICES
1130-122	GENERAL MANAGER, CONSTRUCTION	1130-142	GENERAL MANAGER, TRANSPORT AND COMMUNICATIONS
1130-126	GENERAL MANAGER, FINANCE		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	2	2	4	4	3	4	4	4	5	5	S56	I	6	8	265	45971
		1	1	3	3												

1171 -A ACCOUNTANTS, AUDITORS AND OTHER FINANCIAL OFFICERS

WORK PERFORMED: This chapter includes occupations concerned with planning and administering accounting services, advising on accountancy problems, and planning and conducting audits of accounts. Worker functions include: co-ordinating accounting services, audit activities, or other financial services; analyzing statistical data, rate structures, budgets, applications for credit, or other financial data; negotiating purchase and sale of securities or change in rate structures; supervising activities of accounting, auditing and clerical staff; and advising on foreign banking arrangements, trust funds, underwriting policies, financial systems and procedures, and other financial matters. Work activities include: applying the principles of accounting, cost analysis and statistical analysis to solve accountancy problems; and auditing, preparing, certifying, examining, reporting and maintaining financial accounts, reports and systems.

APTITUDES AND CAPACITIES: Financial Officers require: learning ability to understand and apply the principles and practices of accounting, auditing, statistics, fiscal management, and related systems and procedures; verbal ability to correctly interpret the wishes of clientele and to clearly explain financial procedures, and to advise staff and clientele on related transactions; numerical ability to make mathematical calculations with speed and accuracy; clerical ability to observe differences in documents such as ledgers and inventories, to proofread numbers, and to avoid perceptal errors in mathematical tabulations and calculations; near visual acuity for close up work such as reading or examining fiscal statements.

TRAINING AND ENTRY REQUIREMENTS: Financial Officers normally require: secondary school graduation at the unversity entrance level; a four year university program leading to a bachelor's degree in commerce or in a related field; and up to three years of on-the-job experience; OR secondary school graduation at the university entrance level; and a number of years of on-the-job experience, of which four or five years are devoted to planned courses of study at home. In both cases the passing of periodic and final examinations leading to membership in a provincial accounting association is required. In some provinces, provincial statutes require those engaged in public accounting hold a provincial license.

ADVANCEMENT POSSIBILITIES: Financial Officers in Cluster A, with the necessary experience, may advance to senior management positions within the organization in which they are employed.

TRANSFER POSSIBILITIES: Transfer possibilities are to similar positions in other types of business organizations, such as trade, commerce, industry, government service, public utilities and non-profit institutions.

OCCUPATIONAL TITLES:

1171-110 SUPERVISOR, ACCOUNTANTS
1171-158 SUPERVISOR, AUDITORS
1171-138 BRANCH ACCOUNTANT, BANK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1 2	2	1 2	4	4	2	4	4	4	5	5	S567	I	5-4	9-7	71	OY9457

1171-B ACCOUNTANTS, AUDITORS AND OTHER FINANCIAL OFFICERS

WORK PERFORMED: This chapter includes occupations concerned with planning and administering accounting services, advising on accountancy problems, and planning and conducting audits of accounts. Worker functions include: co-ordinating accounting services, audit activities, or other financial services; analyzing statistical data, rate structures, budgets, applications for credit, or other financial data; negotiating purchase and sale of securities or changes in rate structures; supervising activities of accounting, auditing and clerical staff; and advising on foreign banking arrangements, trust funds, underwriting policies, financial systems and procedures, and other financial matters. Work activities include: applying the principles of accounting, cost analysis and statistical analysis to solve accountancy problems; and auditing, preparing, certifying, examining, reporting and maintaining financial accounts, reports and systems.

APTITUDES AND CAPACITIES: Financial Officers require: learning ability to understand and apply the principles and practices of accounting, auditing, statistics, fiscal management, and related systems and procedures; verbal ability to correctly interpret the wishes of clientele and to clearly explain financial procedures, and to advise staff and clientele on related transactions; numerical ability to make mathematical calculations with speed and accuracy; clerical ability to observe differences in documents such as ledgers and inventories, to proofread numbers, and to avoid perceptual errors in mathematical tabulations and calculations; near visual acuity for close up work such as reading or examining fiscal statements.

TRAINING AND ENTRY REQUIREMENTS: Financial Officers normally require: secondary school graduation at the university entrance level; a four year university program leading to a bachelor's degree in commerce or in a related field; and up to three years of on-the-job experience; OR secondary school graduation at the university entrance level; and a number of years of on-the-job experience, of which four or five years are devoted to planned courses of study at home. In both cases the passing of periodic and final examinations leading to membership in a provincial accounting association is required. In some provinces, provincial statutes require those engaged in public accounting hold a provincial license.

ADVANCEMENT POSSIBILITIES: Financial Officers who display leadership, may advance to related supervisory occupations in Cluster A. Financial Officers who evidence managerial skills, may advance to occupations in Chapter 113/114 under Financial Management Occupations.

TRANSFER POSSIBILITIES: Transfer possibilities are to similar positions in other types of business organizations, such as trade, commerce, industry, government service, public utilities and non-profit institutions.

OCCUPATIONAL TITLES:

1171-114	ACCOUNTANT
1171-118	ACCOUNTANT, BUDGET
1171-122	ACCOUNTANT, COST
1171-126	ACCOUNTANT, MACHINE PROCESSING
1171-130	ACCOUNTANT, PROPERTY
1171-134	ACCOUNTANT, TAX
1171-162	AUDITOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	1 2	4	3 4	2	4	3	4	5	5	S567	I	5	8	71	90Y457

1173 - ORGANIZATION AND METHODS ANALYSTS 138, 264, 268

WORK PERFORMED: This chapter includes occupations concerned with reviewing, analyzing and improving business and organizational systems to assist management to operate with greater efficiency and effectiveness. Worker functions include: analyzing objectives of organization, delegation and exercise of authority, job descriptions, work methods, records, reports and manuals to identify problems and recommend solutions; and interviewing staff and consulting with managers and supervisors to collect and validate data during study. Work activities include: conducting organizational studies and evaluations; designing systems and procedures for new work processes; conducting work simplification and measurement studies; maintaining a forms and records management program; and preparing and maintaining systems and procedures manuals.

APTITUDES AND CAPACITIES: Organization and Methods Analysts require: learning ability to understand and apply the basic principles of business organization, methods and procedures, to analyze and develop an efficient forms and reporting system, and possess an inquisitive and fertile mind with a penchant for detail; verbal ability to communicate effectively both orally or in writing with people of various levels of training and experience; spatial perception to visualize and chart organizational structures, work-flow processes, and to design and determine content and arrangement of business and other forms; form perception for 1173-118 FORMS ANALYST-AND-DESIGNER to see slight differences in widths and lengths of lines when draughting forms and to analyze the style and size of print used; clerical perception to note pertinent detail in written material to avoid errors in organizational charts, instructions, forms and reports; near visual acuity, depth perception and colour discrimination.

TRAINING AND ENTRY REQUIREMENTS: Organization and Methods Analysts require: secondary school graduation; and two to four years on-the-job training supplemented by company-sponsored courses of study and seminars, or extension courses offered by institutes of technology or community colleges or universities; OR graduation from an institute of technology or community college in business administration; and two to four years on-the-job training or related experience; OR a bachelor's degree in commerce and finance from a recognized university; and one to two years on-the-job training or related experience.

ADVANCEMENT POSSIBILITIES: Organization and Methods Analysts with experience and managerial potential may advance to 1149-134 MANAGER, METHODS AND PROCEDURES or to 1173-110 SUPERVISOR, ORGANIZATION AND METHODS ANALYSTS.

TRANSFER POSSIBILITIES: Transfers may be to other occupations within this chapter.

OCCUPATIONAL TITLES:

1173-110	SUPERVISOR, ORGANIZATION AND METHODS ANALYSTS
1173-114	METHODS AND PROCEDURES ANALYST
1173-118	FORMS ANALYST-AND-DESIGNER
1173-122	ORGANIZATIONAL ANALYST
1173-126	RECORD-SYSTEMS ANALYST
1173-130	WORK-STUDY ANALYST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{2}$	$\underline{2}$	3	$\underline{3}$	3	$\underline{3}$	4	4	4	5	4	L567	I	5-4	8-6	762	905174
				$\underline{2}$	$\underline{2}$	$\underline{2}$	3	3	3								9051

1174 - PERSONNEL AND RELATED OFFICERS

068, 108, 138, 168, 268

WORK PERFORMED: This chapter includes occupations concerned with implementing policies as directed by management, primarily related to personnel administration and labour relations. Worker functions include: co-ordinating personnel administrative services, manpower and student employment and counselling services, and scholarship, grant and loan programs; analyzing and synthesizing job and occupational information for purposes, such as classification, salary determination, career information, and manpower research and planning; interviewing and counselling employees and job seekers to determine their suitability for employment, promotion or training programs. Work activities include: representing management or labour in collective-bargaining procedures; participating in programs related to welfare, safety, and compensation of employees; preparing job analyses to provide occupational data; determining job seekers' suitability for employment, vocational training, rehabilitation programs and related manpower services.

APTITUDES AND CAPACITIES: Personnel and Related Officers require: learning ability to understand and apply the principles of personnel administration in such fields as employment, counselling, occupational and salary analysis, labour relations and student financial-aid programs; verbal ability to communicate effectively with people at all levels of education and training and from a wide variety of occupational backgrounds, and to present information lucidly, both orally and in writing; numerical ability to prepare financial and material estimates and reports; clerical perception to review reports, collective-bargaining agreements, contracts, personnel records and other written material.

TRAINING AND ENTRY REQUIREMENTS: Personnel and Related Officers usually require: a bachelor's degree with a major in psychology, sociology or business administration; a minimum of two years on-the-job experience; and completion of specialized courses provided by universities, community colleges or employers in personnel administration, labour relations, or job and occupational analysis.

ADVANCEMENT POSSIBILITIES: Advancement for individuals with sufficient experience and managerial potential may be to 1136-110 INDUSTRIAL-RELATIONS MANAGER or 1136-114 PERSONNEL MANAGER, while others with leadership qualities and supervisory potential may advance to the supervisory occupations in this chapter.

TRANSFER POSSIBILITIES: Transfers may occur to other occupations in this chapter. Those who have a bachelor's degree in the social sciences or business administration may transfer to occupations in psychology, sociology or business administration, and those with appropriate qualifications and certification may transfer to occupations in teaching, occupational guidance or counselling.

OCCUPATIONAL TITLES:

1174-110	LABOUR-RELATIONS SPECIALIST
1174-114	EMPLOYMENT SUPERVISOR
1174-118	PERSONNEL OFFICER
1174-122	OCCUPATIONAL ANALYST
1174-126	FINANCIAL-AIDS OFFICER
1174-130	MANPOWER COUNSELLOR
1174-134	EMPLOYMENT INTERVIEWER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	4	4	3	4	4	4	5	5	S56	I	5	8-6	265	590741
	3	3	2			2											

1175 - PURCHASING OFFICERS & BUYERS, EXCEPT WHOLESALE & RETAIL TRADE

WORK PERFORMED: This chapter includes occupations concerned with buying goods and services for internal use or for further processing in governmental, industrial, business or other establishments. Worker functions include: co-ordinating the purchase of goods, or services of the correct type, quantity and quality, and their delivery according to schedule; and negotiating prices, specification requirements, and other contractual details with suppliers. Work activities include: establishing organization's requirements; studying catalogues, trade periodicals and current market data on availability, variety and prices of goods and services; developing and interpreting specifications; inviting tenders, interviewing suppliers and establishing delivery schedules.

APTITUDES AND CAPACITIES: Purchasing Officers and Buyers require: learning ability to acquire and apply a knowledge of the principles and techniques involved in purchasing; verbal ability to understand purchasing and sales terminology, and communicate effectively and persuasively with suppliers when negotiating for goods and services; numerical ability to calculate prices, credits, discounts and quantities, and to purchase goods and services within budgetary limitations; clerical perception to keep records of purchases, prepare and review contracts and requisitions, analyse budgets and examine market information for product specifications; ability to recognize similarities or differences in colours of the materials purchased, for 1175-114 PURCHASING OFFICER, FOOD AND RELATED PRODUCTS; near-visual acuity when examining specifications, policies agreements and orders.

TRAINING AND ENTRY REQUIREMENTS: Purchasing Officers and Buyers normally require: high school graduation; and two to four years experience.

ADVANCEMENT POSSIBILITIES: Advancement for those with sufficient knowledge and experience may be from assistant buyer to buyer, to assistant purchasing officer to purchasing officer. Individuals with broad purchasing experience and with managerial potential may advance to occupations 1141-110 MANAGER, MERCHANDISE PURCHASING or 1141-114 MANAGER, PURCHASING.

TRANSFER POSSIBILITIES: Workers with suitable qualification may transfer to sales, general plant administration, accounting, auditing, warehousing, traffic and to product and market research.

OCCUPATIONAL TITLES:

1175-110	PURCHASING OFFICER, BUSINESS SERVICES
1175-114	PURCHASING OFFICER, FOOD AND RELATED PRODUCTS
1175-118	PURCHASING OFFICER, MATERIAL

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	3	4	3	4	4	4	5	3	S567	I-B	5	7	26	5790
				4							5						

2111 - CHEMISTS

WORK PERFORMED: This chapter includes occupations concerned with conducting basic and applied research to extend the knowledge of chemistry, and to develop new or improved compounds, materials or substances. Worker functions include: interpreting and synthesizing data collected from research and experimentation; supervising and co-ordinating the activities of technologists and technicians; and skilfully using technical equipment and other work aids to conduct qualitative and quantitative analyses and experiments. Work activities include: developing analytical methodology and techniques, conducting experiments in organic, inorganic and physical chemistry; synthesizing compounds and products; analyzing finished products; and preparing laboratory and technical reports.

APTITUDES AND CAPACITIES: Chemists require: learning ability to understand and apply scientific theories and data, conduct laboratory experiments, comprehend the principles underlying chemical properties and chemical change, and work with theoretical concepts; verbal ability to understand the meaning of words and ideas associated with them, comprehend scientific terminology of chemistry, and understand the language of textbooks, professional magazines and papers; numerical ability to use advanced mathematics quickly and accurrately, derive formulate for solving unknown variables, and simultaneously determine relationships of several variables; spatial perception to visualize chemical reactions and changes in properties, and to think visually of geometric forms as applicable to molecular patterns in solids, liquids, and gases; form perception to observe pertinent detail in objects and make visual comparisons and discriminations during analytical studies of physical and chemical properties of organic and inorganic substances; clerical perception to see pertinent detail in verbal or tabular material, to observe differences in copy, and to avoid errors in mathematical computations; colour discrimination to recognize similarities or differences in colour, shades or other colour values of chemical substances and accurately identify and match colours; capacity to handle, finger and feel objects, materials and scientific instruments, and adjust or calibrate scientific instruments; visual acuity to discern details when using high-powered microscopes or simple magnification devices; adaptability to extremes of temperatures, and to wet or humid conditions, important for 2111-118 CHEMICAL OCEANOGRAPHER, when conducting studies in marine environment; adaptability to hazardous conditions, such as those that may cause burns or poisoning from toxic chemicals and substances.

TRAINING AND ENTRY REQUIREMENTS: Chemists normally require a bachelor's degree with specialization in some branch of chemistry. A minimum of a master's degree is usually expected for a position in applied research in industry or for a teaching position in a university. A Ph.D is generally required for a position in basic research. Professional chemists in the Province of Quebec must be registered and must comply with the provisions of the Professional Chemists' Act. In some provinces, agricultural chemists must be registered professional agrologists.

ADVANCEMENT POSSIBILITIES: Chemists with managerial ability may advance to 1131-126 MANAGER, PHYSICAL SCIENCES PROGRAM which requires considerable experience in planning, organizaing, directing and controlling personnel primarily concerned with research and quality control activities.

TRANSFER POSSIBILITIES: Normally, Chemists do not transfer to work associated with other disciplines; however, they may transfer to other specialties within chemistry provided they have acquired the additional training requirements.

OCCUPATIONAL TITLES:

2111-110 AGRICULTURAL CHEMIST
2111-114 ANALYTICAL CHEMIST
2111-118 CHEMICAL OCEANOGRAPHER
2111-122 INORGANIC CHEMIST
2111-126 ORGANIC CHEMIST
2111-130 PHYSICAL CHEMIST
2111-134 QUALITY-CONTROL CHEMIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	2	2	2	2	2	3	3	3	5	3	L47	I6	6	8	781	0Y914
			1	1	1						2						

2112 - GEOLOGISTS AND RELATED SCIENTISTS

WORK PERFORMED: This chapter includes occupations concerned with conducting research into the nature and history of the earth's crust, the physical nature of the atmosphere and hydrosphere, the distribution, circulation and properties of water, and the stratigraphic arrangement of the earth. Worker functions include: analyzing and synthesizing data to discover facts; compiling and interpreting research data; and skilfully using technical equipment and work aids, such as seismographs, gravimeters, magnetometers and electrical-resistivity apparatus to make precise measurements and plot geological observations. Work activities include: identifying and classifying fossils and precious stones; locating and advising on the development and extraction of oil, natural gas and mineral deposits; and conducting surveys to measure seismic, gravitational and magnetic forces affecting the earth.

APTITUDES AND CAPACITIES: Geologists and Related Scientists require: learning ability and intellectual capacity to understand and apply the principles of geology, a high degree of reasoning ability, a penchant for detail, and an inquisitive and imaginative mind; verbal ability to understand the meaning of scientific terminology and ideas associated with them, and to communicate clearly, orally or in writing; numerical ability to perform advanced-mathematical calculations quickly and accurately in areas, such as plotting, mapping and interpreting seismographic recordings; spatial perception to visualize land contours, and identify rock formations and seam and fault alignments from observations, or from data such as steroscopic-aerial photographs; form perception to make visual comparisons, using microscopes and other technical instruments to determine shape, surface markings and other physical characteristics of rocks and rock formations, and to examine specimens and determine geological age; colour discrimination to recognize similarities or differences in colour, or in shades or other values of same colour when examining rock specimens or core samples; capacity to climb over uneven rock surfaces and maintain balance while walking, standing or running on slippery, narrow, or steep surfaces; capacity to stoop, crawl or kneel during field trips to examine and collect geological specimens; capacity to extend arms, handle, finger or feel objects, when judging size, shape and texture, and to adjust scientific instruments and laboratory equipment; good hearing to detect changes in tone on measuring instruments which emit sound signals; visual acuity, both near and far, depth perception to judge distances and a good field of vision for observing objects outdoors, examining stereoscopic aerial photographs, and adjusting lenses to bring objects into focus; capacity to withstand extremes of temperature changes that cause bodily discomfort; capacity to adjust to situations in which there is a risk of bodily injury.

TRAINING AND ENTRY REQUIREMENTS: Geologists and Related Scientists normally require: a bachelor of science or geology degree, supplemented by on-the-job experience extending over two or more years; a master's degree, usually, for a position in applied research in a governmental or industrial research setting, or for a laboratory teaching position in a university or community college; a Ph.D for more-advanced positions in basic research.

ADVANCEMENT POSSIBILITIES: After considerable experience, advancement may be to 1131-126 MANAGER, PHYSICAL SCIENCES PROGRAM.

TRANSFER POSSIBILITIES: Geologists and Related Scientists may transfer to specialties within this chapter provided they have taken additional training. Transfers may be to some occupations in civil engineering, such as 2143-150 SOIL ENGINEER or to other engineering occupations such as 2159-134 GEOLOGICAL ENGINEER provided they meet the necessary requirements of the Professional Engineers' Act.

OCCUPATIONAL TITLES:

2112-110	EXPLORATION GEOPHYSICIST	2112-126	MINERALOGIST
2112-114	GEOLOGIST	2112-130	PALEONTOLOGIST
2112-118	GEOPHYSICIST	2112-134	PETROLEUM GEOLOGIST
2112-122	HYDROLOGIST	2112-138	SEISMOLOGIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	1	2	2	3	3	3	3	4	3	L23467	B26	6	8	781	09Y41
			2	1					4		4						

2113 - PHYSICISTS

WORK PERFORMED: This chapter includes occupations concerned with conducting research to expand the knowledge of the science of physics and to further the scientific and commerical utilization of heat, light, acoustics, electricity and magnetism, atoms, molecules and nuclei and other physical phenomena. Work functions include: synthesizing research data to formulate or substantiate new theories, concepts or laws; analyzing and evaluating results of experiments to determine their validity or application; supervising the work of technologists, technicians and and other support staff; making precise measurements by skilfully using scientific equipment and other work aids to achieve desired standards. Work activities include: conducting experiments to discover the fundamental particles of matter; recording and reporting the results of experiments; preparing scientific papers; observing the forms; predicting results of experiments and applying these results to a scientific or commercially viable product or process.

APTITUDES AND CAPACITIES: Physicists require: learning ability to comprehend the basic properties of matter and laws governing the behaviour of energy in all its forms, the relationship between energy and matter, and theoretical concepts, and intellectual capacity to acquire the necessary academic background and make reasoned judgments; verbal ability to understand the meanings and use of words, scientific terminology and ideas associated with them, and to communicate clearly in writing or orally; numerical ability to apply advanced mathematical techniques and carry out precise measurements to formulate mathematical relationships of physical phenomena; spatial perception to visualize geometric forms, comprehend the abstract relationships of geometry and logic, and discover mathematical regularities in things, such as nuclei and atoms, solids, liquids and gases; form perception to make visual comparisons and to observe slight differences in shapes and arrangements; capacity to hear and make fine discriminations in sound, especially in the study of acoustics; visual acuity, both near and far, depth perception and colour discrimination; capacity to work indoors in controled environmental conditions, or outside in wet or humid conditions when employed as 2113-150, PHYSICAL OCEANOGRAPHER.

TRAINING AND ENTRY REQUIREMENTS: Physicists normally require: a bachelor's degree in science; and up to two years of on-the-job training; a master's degree for any person wishing to qualify in a specialty such as nuclear or optics physics in research and development; a Ph.D for basic research in universities and the more advanced research positions in government or private industry.

ADVANCEMENT POSSIBILITIES: Physicists with manalgerial ability may advance to 1131-126 MANAGER, PHYSICAL SCIENCES PROGRAM. After obtaining further academic qualifications and experience, physicists may be in charge of special research programs.

TRANSFER POSSIBILITIES: Physicists with additional training may transfer to other occupations within this chapter. Transfers may be to teaching occupations in universities and community colleges, or in secondary schools, for those with appropriate qualificatons and certification.

OCCUPATIONAL TITLES:

2113-110 ACOUSTICS PHYSICIST
2113-114 ASTRONOMER
2113-118 ATOMIC AND MOLOCULAR PHYSICIST
2113-122 ELECTRICITY AND MAGNETISM PHYSICIST
2113-126 ELEMENTARY-PARTICLE PHYSICIST
2113-130 FLUIDS PHYSICIST
2113-134 HEALTH PHYSICIST
2113-138 MECHANICS PHYSICIST
2113-142 NUCLEAR PHYSICIST
2113-146 OPTICS PHYSICIST
2113-150 PHYSICAL OCEANOGRAPHER
2113-154 PLASMA PHYSICIST
2113-158 SOLID-STATE PHYSICIST
2113-162 THERMAL PHYSICIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	1	1	1	3	3	3	3	5	4 3	L567	I-B	6	8	7801	OY941

2114 - METEOROLOGISTS

WORK PERFORMED: This chapter includes occupations concerned with studying the structure and behaviour of the atmosphere; conducting pure research in atmostpheric science, and applied research concerned with the solution of problems; and the preparation of weather forecasts. Work functions include: analyzing and synthesizing data obtained by observation and investigation to develop and interpret weather forecasts and other meteorological information; compiling research data to develop knowledge, concepts and facts; skilfully using scientific instruments to obtain accurate readings and make precise measurements; and supervising the work of technologists, technicians and other support staff. Work activities include: preparing weather maps and forecasts; investigating natural or induced precipitation, cloud physics, air pollution, atmospheric turbulence, winds and temperatures; and preparing mathematical models for the solution of problems by computers.

APTITUDES AND CAPACITIES: Meteorologists require: learning ability and intellectual capacity to understand and apply a knowledge of scientific theories and data and reasoning ability to make judgments on the natural laws governing the science of meteorology; verbal ability to understand the meaning of technical words and ideas associated with them and to communicate clearly in written or oral form; numerical ability to make advanced mathematical and statistical computations quickly and accurately; spatial perception to visualize relative paths or positions of stationary and moving weather fronts and relate these phenomena, using symbols on maps and charts; form perception to detect pertinent details in graphic or tabular material, such as satellite photographs, weather maps, and statisical data, to make visual comparisons and discriminations, and to see slight differences in shapes and shadings of figures and widths and lengths of lines; clerical perception to observe differences in copy and recognize errors on charts, maps and on other meteorological data, and to avoid perceptual errors in mathematical computations; capacity for reaching, handling and fingering scientific instruments used for weather recording and for plotting data; visual acuity, both near and far; capacity to work inside in controlled environmental conditions, or outside in extreme weather conditions subject to marked temperature changes.

TRAINING AND ENTRY REQUIREMENTS: Meteorologists normally require: a four-year university general sciences program with emphasis on mathematics and physics leading to a bachelor's degree; and post-graduate studies leading to a master's or Ph.D degree, depending on the complexity of the work; or a one year program of training provided by the employers.

ADVANCEMENT POSSIBILITIES: As a Meteorologist gains experience and proficiency and has the necessary supervisory and leadership qualities, he may be employed in more responsible positions as a supervisor of an operational or regional office, or as an administrator in either regional or headquarters organizations, particularly in the government service.

TRANSFER POSSIBILITIES: Normally, Meteorologists do not transfer to other occupations but they may transfer to other specialties within meteorology provided they take the additional training.

OCCUPATIONAL TITLES:

2114-110 METEOROLOGIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	2	1	1	2	3	4	3	3	5	4	L47	B23	6	8	79	09Y4

2117-A PHYSICAL SCIENCES TECHNOLOGISTS AND TECHNICIANS

WORK PERFORMED: This chapter includes occupations concerned with technological and technical work in support of a physical science specialization, such as chemistry, physics, geology, geophysics, textiles and meteorology. Worker functions include: skilfully using special tools and test equipment to conduct qualitative and quantitative analyses and to control factors, such as temperature, pressure, flow of liquid and viscosity; analyzing data obtained from studies and experiments; and collating and classifying this information for use by scientists and other technical workers. Work activities include: assisting scientists and other technical workers in the research, design and development of products, and to devise systems and processes; constructing, installing, manufacturing, repairing, calibrating or modifying standard equipment or systems; incorporating design details into drawings; determining work procedures; diagnosing complex test equipment or process malfunctions; and conducting work studies and preparing charts, graphs and other supporting data for reports.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply scientific or technical principles and work methods in a research laboratory, on a production line or at a work site; verbal ability to understand and use scientific terminology, prepare reports and communicate effectively in oral or written form; numerical ability to compute chemical, geological, geophysical or other physical science problems; spatial perception to observe and understand the arrangement and relationship of physical properties in matter, and drawings, maps or survey detail; form perception to observe and compare consistency of chemical compounds, or to interpret recordings of quantometers, spectrometers, densitometers or seismographs; finger dexterity to manipulate laboratory test equipment, and to calibrate measuring devices; colour discrimination to recognize similarities or differences in colour, chemical solutions or in rock samples; capacity to discriminate various sounds and changes in sound pitch when conducting geophysical and acoustic studies; visual acuity, good field of vision and depth perception when working with simple and complex magnification devices; capacity to work in conditions where there are possible hazards from equipment, exposure to fumes, odours, dust, gases, mists, volatile liquids and caustic chemicals or poor ventilation.

TRAINING AND ENTRY REQUIREMENTS: Workers generally require: secondary school graduation; and either, graduation from a community-college program of two or three years in one of the physical sciences, and up to two years experience on-the-job, under the supervision of a physical scientist; OR four years experience on-the-job, supplemented by a part-time or self-study program in their physical-science specialty.

ADVANCEMENT POSSIBILITIES: Technologists with a supervisory and leadership qualities may advance to supervisory occupations.

TRANSFER POSSIBILITIES: Transfers are limited between occupations in these clusters due to the high degree of specialization and training required.

OCCUPATIONAL TITLES:

2117-110	CHEMICAL TECHNOLOGIST
2117-114	FOREST-PRODUCTS TECHNOLOGIST
2117-118	GEOLOGICAL TECHNOLOGIST
2117-122	GEOPHYSICAL TECHNOLOGIST
2117-126	LABORATORY PHYSICAL SCIENCE TECHNOLOGIST
2117-130	TEXTILE TECHNOLOGIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	2	3	3	3	3	3	5	3	L4567	I-B67	5	7	791	OY
			3	3	2						4						

2117-B PHYSICAL SCIENCES TECHNOLOGISTS AND TECHNICIANS 261, 361

WORK PERFORMED: This chapter includes occupations concerned with technological and technical work in support of a physical science specialization, such as chemistry, physics, geology, geophysics, textiles and meteorology. Worker functions include: skilfully using special tools and test equipment to conduct qualitative and quantitative analyses and to control factors, such as temperature, pressure, flow of liquid and viscosity; analyzing data obtained from studies and experiments; and collating and classifying this information for use by scientists and other technical workers. Work activities include: assisting scientists and other technical workers in the research, design and development of products, and to devise systems and processes; constructing, installing, manufacturing, repairing, calibrating or modifying standard equipment or systems; incorporating design details into drawings; determining work procedures; diagnosing complex test equipment or process malfunctions; and conducting work studies and preparing charts, graphs and other supporting data for reports.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply scientific or technical principles and work methods in a research laboratory, on a production line or at a work site; verbal ability to understand and use scientific and technical terminology, prepare reports and communicate effectively in oral or written form; numerical ability to compute chemical, geological, geophysical or other physical science problems; spatial perception to observe and understand the arrangement and relationship of physical properties in matter, and drawings, maps or survey detail; form perception to observe and compare consistency of chemical compounds, or to interpret recordings of quantometers, spectrometers, densitometers or seismographs; finger dexterity to manipulate laboratory test equipment, and to calibrate measuring devices; colour discrimination to recognize similarities or differences in colour, chemical solutions or in rock samples; capacity to discriminate various sounds and changes in sound pitch when conducting geophysical and acoustic studies; visual acuity, good field of vision and depth perception when working with simple and complex magnification devices; capacity to work in conditions where there are possible hazards from equipment, exposure to fumes, odours, dust, gases, mists, volatile liquids and caustic chemicals or poor ventilation; clerical perception to observe differences in copy, proofread numbers and words, and avoid errors in mathematical computations; capacity to perform medium work requiring frequent lifting of objects weighing up to twenty pounds and occasionally carrying or moving objects weighing up to fifty pounds; capacity to work in conditions with a moisture content sufficient to cause bodily discomfort; capacity to work in close proximity to noises and vibrations, either constant or intermittent, which could cause distraction or possible injury to the sense of hearing.

TRAINING AND ENTRY REQUIREMENTS: Workers generally require: training and experience somewhat similar to that for Cluster A, but to a lesser extent.

ADVANCEMENT POSSIBILITIES: Technicians with the necessary qualifications and experience may advance to occupations in Cluster A. Technicians with a supervisory ability and leadership qualities may advance to supervisory occupations.

TRANSFER POSSIBILITIES: Transfers are limited between occupations in these clusters due to the high degree of specialization and training required.

OCCUPATIONAL TITLES:

2117-240 ASSAYER
2117-244 WATER-PURIFICATION TECHNICIAN
2117-248 CHEMICAL TECHNICIAN
2117-252 GEOLOGICAL TECHNICIAN
2117-256 HYDROLOGY TECHNICIAN
2117-260 METEOROLOGICAL TECHNICIAN
2117-264 LABORATORY PHYSICAL SCIENCE TECHNICIAN
2117-268 TEXTILE TECHNICIAN
2117-272 GEOPHYSICAL-EQUIPMENT OPERATOR, AIRBORNE
2117-276 GEOPHYSICAL TECHNICIAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	3	3	3	2	3	3	3	3	5	3	L-M4567	I-B4567	4	6	791	OY
		2	2	2	3	2					4						

2131-A AGRICULTURISTS AND RELATED SCIENTISTS 031, 131

WORK PERFORMED: This chapter includes occupations concerned with conducting research into the growth, genetics and viability of plants and animals, and the nature and composition of soils to extend the knowledge of agriculture and horticulture and apply this knowledge to the development, propogation and conservation of plants and animals. Worker functions include: synthesizing and analyzing data collected during soil, crop or livestock studies; supervising and co-ordinating the work of technologists, technicians and other support staff; and skilfully using technical equipment and other work aids to achieve precise standards during research and experimentation. Work activities include: studying the location, characteristics and composition of soils; controlling breeding experiments on plants and animals; developing new methods of processing and storing agricultural products; and advising farmers on various aspects of agriculture, horticulture and animal husbandry.

APTITUDES AND CAPACITIES: Agriculturists and Related Scientists require: learning ability to understand and apply the basic laws of nature and scientific methods of investigation, work with theoretical concepts, use reasoning and sound judgment, intellectual capacity to acquire the necessary academic background; verbal ability to understand the use and the terminology associated with agricultural sciences, and express or exchange ideas clearly in written or oral form; numerical ability to understand and apply advanced mathematics, devise formulae for solving unknown variables, and understand and apply statistical methods; form perception to observe detail in objects or in pictorial or graphic material, make visual comparisons and discriminations and detect slight differences in organs and tissues during microscopic examinations; capacity to handle, finger and feel objects or materials to determine characteristics such as size, shape, temperature and texture; near visual acuity to discern fine detail and colour discrimination, especially for microscopic examinations or simple magnifications; capacity to work inside under controlled environmental conditions, and outside while subject to extremes of weather.

TRAINING AND ENTRY REQUIREMENTS: Agriculturists and Related Scientists normally require: a bachelor's degree in agricultural science; plus two to four years on-the-job training. A master's degree is generally required for more responsible government, management or applied research positions; a Ph.D. degree is required for advanced positions in basic research. Some provinces have legislation which require registration with a provincial association to practice as professional agrologists.

ADVANCEMENT POSSIBILITIES: Agriculturists and Related Scientists with managerial ability may advance to occupations, such as 1131-122 MANAGER, LIFE SCIENCES PROGRAM or 1131-126 MANAGER, PHYSICAL SCIENCES PROGRAM.

TRANSFER POSSIBILITIES: Agriculturists and Related Scientists may transfer to other agricultural specialties within this chapter provided they have completed the necessary academic qualifications, or they may transfer to teaching positions in an agricultural college or university, such as 2711-112 UNIVERSITY TEACHER, AGRICULTURE.

OCCUPATIONAL TITLES:

2131-110	AGRICULTURAL SCIENTIST
2131-114	ANIMAL SCIENTIST
2131-118	FOOD SCIENTIST
2121-122	PLANT SCIENTIST
2131-126	SOIL SCIENTIST
2131-130	HORTICULTURIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	1	4	3	3	4	3	3	5	4	S-L4567	B-I	6-5	8	781	90Y1
	2	2	2	3	2	4					3						

2131-B AGRICULTURISTS AND RELATED SCIENTISTS

WORK PERFORMED: This chapter includes occupations concerned with conducting research into the growth, genetics and viability of plants and animals, and the nature and composition of soils to extend the knowledge of agriculture and horticulture and apply this knowledge to the development, propogation and conservation of plants and animals. Worker functions include: synthesizing and analyzing data collected during soil, crop or livestock studies; supervising and co-ordinating the work of technologists, technicians and other support staff; and skilfully using technical equipment and other work aids to achieve precise standards during research and experimentation. Work activities include: studying the location, characteristics and composition of soils; controlling breeding experiments on plants and animals; developing new methods of processing and storing agricultural products; and advising farmers on various aspects of agriculture, horticulture and animal husbandry.

APTITUDES AND CAPACITIES: Agriculturists and Related Scientists require: learning ability to understand and apply the basic laws of nature and scientific methods of investigation, work with theoretical concepts, use reasoning and sound judgment, intellectual capacity to acquire the necessary academic background; verbal ability to understand the use and the terminology associated with agricultural sciences, and express or exchange ideas clearly in written or oral form; numerical ability to understand and apply advanced mathematics, devise formulae for solving unknown variables and understand and apply statistical methods; form perception to observe detail in objects or in pictorial or graphic material, make visual comparisons and discriminations and detect slight differences in organs and tissues during microscopic examinations; capacity to handle, finger and feel objects or materials to determine characteristics such as size, shape, temperature and texture; near visual acuity to discern fine detail and colour discrimination, especially for microscopic examinations or simple magnifications; capacity to work inside under controlled environmental conditions, and outside while subject to extremes of weather.

TRAINING AND ENTRY REQUIREMENTS: Agriculturists and Related Scientists normally require: a bachelor's degree in agricultural science; plus two to four years on-the-job training. A master's degree is generally required for more responsible government, management or applied research positions; a Ph.D. degree is required for advanced positions in basic research. Some provinces have legislation which require registration with a provincial association to practice as professional agrologists.

ADVANCEMENT POSSIBILITIES: Agriculturists and Related Scientists with managerial ability may advance to occupations, such as 1131-122 MANAGER, LIFE SCIENCES PROGRAM or 1131-126 MANAGER, PHYSICAL SCIENCES PROGRAM.

TRANSFER POSSIBILITIES: Agriculturists and Related Scientists may transfer to other agricultural specialties within this chapter provided they have completed the necessary academic qualifications, or they may transfer to teaching positions in an agricultural college or university, such as 2711-112 UNIVERSITY TEACHER, AGRICULTURE.

OCCUPATIONAL TITLES:

2131-134 FIELD SERVICE MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	4	3	4	4	3	3	4	4	L4567	B	5	8	76	90Y51

2133 - BIOLOGISTS AND RELATED SCIENTISTS

WORK PERFORMED: This chapter includes occupations concerned with conducting pure and applied research into all forms of living organisms and vital processes, their relationship to each other and to their environment. Worker functions include: analyzing and synthesizing data collected from research; supervising and co-ordinating the activities of technologists and technicians; and skilfully using technical equipment and other work aids during biological studies. Work activities include: studying the origin, development, growth, reproduction, structure, functions, distribution and other life phenomena of a single species or community of species; conducting laboratory and fied studies; and observing characteristics of, and classifying species and types.

APTITUDES AND CAPACITIES: learning ability and the intellectual capacity to understand and apply biological theories and concepts and make reasoned judgements; verbal ability to understand the meanings and use of biolobical terminology and ideas associated with them and to communicate clearly both orally and in writing; numerical ability to understand and apply advanced mathematics for purposes such as constructing mathematical models to determine the relation of several variables in the fields of genetics and biophysics, and to evaluate the results of these models, describing cycles or control aspects at various levels of living organisms; spatial perception to visualize forms and relationships of objects, such as the development, arrangement and structure of organisms; form perception to see pertinent detail in objects or specimens, to make visual comparisons and discriminations and to ascertain their differences or similarities in shapes, shadings and relative sizes during microscopic examinations; capacity for handling and fingering objects, materials and scientific instruments; near visual acuity to see size, shape, form and other characteristics of objects by natural or other means and good colour discrimination; adaptability to possible hazardous conditions when working in a laboratory with pathogenic micro-organisms or viruses.

TRAINING AND ENTRY REQUIREMENTS: a four year bachelor's degree in the biological sciences, and; post-graduate studies of two or more years leading to a master's degree together with work experience in the specialty. For the occupations of 2133-198 PATHOLOGIST, ANIMAL and 2133-202 PATHOLOGIST, MEDICAL, a doctoral degree in veterinary medicine or medicine respectively is required followed by post-graduate studies in the particular specialization.

ADVANCEMENT POSSIBILITIES: Workers with a potential for planning, organizing, directing and controlling activities of others may advance to 1132-122 MANAGER, LIFE SCIENCES PROGRAM. Advancement may be from lower to higher grades of positions in establishments where a grading system is in effect.

TRANSFER POSSIBILITIES: Normally, workers do not transfer to other disciplines, however, they may transfer to other specialties within biology provided they have taken additional training in that specialty. If they acquire the necessary qualifications, they may teach in secondary schools, community colleges or universities, for example as 2711-130 UNIVERSITY TEACHER, LIFE SCIENCES.

OCCUPATIONAL TITLES:

2133-110	AQUATIC BIOLOGIST
2133-114	BOTANIST
2133-118	ENTOMOLOGIST
2133-122	MYCOLOGIST
2133-126	ZOOLOGIST
2133-146	BACTERIOLOGIST
2133-150	FISHERY BACTERIOLOGIST
2133-154	FOOD BACTERIOLOGIST
2133-158	INDUSTRIAL BACTERIOLOGIST
2133-162	MEDICAL BACTERIOLOGIST
2133-166	MICROBIOLOGIST
2133-170	PHARMACEUTICAL BACTERIOLOGIST
2133-174	SOIL BACTERIOLOGIST
2133-194	ANATOMIST
2133-198	PATHOLOGIST, ANIMAL
2133-202	PATHOLOGIST, MEDICAL
2133-206	PATHOLOGIST, PLANT
2133-210	PHARMACOLOGIST
2133-214	PHYSIOLOGIST
2133-234	BIOCHEMIST
2133-238	BIOPHYSICIST
2133-242	CELL BIOLOGIST
2133-246	CLINICAL CHEMIST
2133-250	GENETICIST
2133-254	MOLECULAR BIOLOGIST
2133-258	PARASITOLOGIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	1	2	2	3	3	2	3	5	3	S47	I6	6	8	781	09Y1
			2	1	1		2	3			2						

2135-A LIFE SCIENCES TECHNOLOGISTS AND TECHNICIANS

WORK PERFORMED: This chapter includes occupations concerned with technological and technical work in support of a life science specialization such as agriculture, botany, biology, zoology and forestry. Worker functions include: skilfully using technical equipment and other work aids to conduct experiments and analysis to achieve desired quality and work standards; compiling, collating, classifying and reporting on results of experiments, tests and analyses; and examining and evaluating data obtained from life science studies and experiments. Work activities include: assisting life scientists and other technical workers in research, design and development of special test equipment and experiments; and conducting experiments, tests and analyses, and organizing results of these studies.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply scientific principles and methods to life science studies and experiments in agriculture, botany, zoology and biology; verbal ability to understand and use life sciences terminology to communicate effectively in oral or written form; numerical ability to make arithmetic, algebraic and geometric computations concerning population densities, distribution growth, generic development and other statistics applicable to life sciences investigations; form perception to detect pertinent detail when studying and experimenting with micro-organisms, plant or animal specimens; finger dexterity to adjust microscopes and other optical instruments; colour discrimination to perceive or recognize similarities or differences when examining biological specimens; capacity to reach, handle, finger or feel objects to determine their shape, size, temperature or texture; near visual acuity and depth perception when working with microscopes and other magnification devices; adaptability to conditions where there is a risk to health from exposure to viruses, fumes, dust, liquids and other dangers; capacity to stoop, kneel and crouch when collecting or studying plant and animal life in the field.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: secondary school graduation and depending on the complexity of the occupation; either, graduation from a community college program of two to three years in a life science; and two or more years of on-the-job experience, under the supervision of a life scientist; OR four or more years of on-the-job experience, supplemented by part-time in the science specialty.

ADVANCEMENT POSSIBILITIES: Technologists with sufficient experience, leadership abilities and supervisory potential may advance to supervisory occupations of senior technologist or senior technician.

TRANSFER POSSIBILITIES: Transfers are limited for technologist and usually occur within their own clusters.

OCCUPATIONAL TITLES:

2135-110	AGRICULTURAL TECHNOLOGIST
2135-130	BACTERIOLOGICAL TECHNOLOGIST
2135-134	BIOLOGICAL TECHNOLOGIST
2135-138	BOTANICAL TECHNOLOGIST
2135-142	ZOOLOGICAL TECHNOLOGIST
2135-162	FISH-FARM TECHNOLOGIST
2135-166	FOOD TECHNOLOGIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	4	2	3	3	2	3	5	3	S-L347	I-B67	5	7	791	OY9
				3				3									

2135-B LIFE SCIENCES TECHNOLOGISTS AND TECHNICIANS

WORK PERFORMED: This chapter includes occupations concerned with technological and technical work in support of a life science specialization such as agriculture, botany, biology, zoology and forestry. Worker functions include: skilfully using technical equipment and other work aids to conduct experiments and analysis to achieve desired quality and work standards; compiling, collating, classifying and reporting on results of experiments, tests and analyses; and examining and evaluating data obtained from life science studies and experiments. Work activities include: assisting life scientists and other technical workers in research, design and development of special test equipment and experiments; and conducting experiments, tests and analyses, and organizing results of these studies.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply scientific principles and methods to life science studies and experiments in agriculture, botany, zoology and biology; verbal ability to understand and use life sciences terminology to communicate effectively in oral or written form; numerical ability to make arithmetic, algebraic and geometric computations concerning population densities, distribution growth, generic development and other statistics applicable to life sciences investigations; form perception to detect pertinent detail when studying and experimenting with micro-organisms, plant or animal specimens; finger dexterity to adjust microscopes and other optical instruments; colour discrimination to perceive or recognize similarities or differences when examining biological specimens; capacity to reach, handle, finger or feel objects to determine their shape, size, temperature or texture; near visual acuity and depth perception when working with microscopes and other magnification devices; adaptability to conditions where there is a risk to health from exposure to viruses, fumes, dust, liquids and other dangers; capacity to perform medium work requiring the frequent lifting of objects weighing up to twenty pounds and occasionally moving or carrying objects weighing up to fifty pounds.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require training and experience similar to that for Technologists, but usually of shorter duration.

ADVANCEMENT POSSIBILITIES: Technicians with sufficient experience, leadership abilities and supervisory potential may advance to supervisory occupations of senior technologist or senior technician. Technicians may advance within their own specialty to technologist occupations in Cluster A.

TRANSFER POSSIBILITIES: Transfers are limited for Technicians and usually occur within their own clusters.

OCCUPATIONAL TITLES:

2135-220	AGRICULTURAL TECHNICIAN	2135-248	BOTANICAL TECHNICIAN
2135-240	BACTERIOLOGICAL TECHNICIAN	2135-252	ZOOLOGICAL TECHNICIAN
2135-244	BIOLOGICAL TECHNICIAN	2135-272	FOREST TECHNICIAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	3	3	4	2	3	3	3	3	5	3	L-M47	I-B67	4	6	791	OY
				3	3												

2141 - ARCHITECTS

WORK PERFORMED: This chapter includes occupations concerned with the design and construction of buildings and related structures, and aesthetic landscaping for parks, road development and other projects. Work functions include: integrating analyses of data to develop concepts and architectural plans; exchanging ideas, information and opinions to formulate policies, programs and contracts; and skilfully using tools, work aids and considerable judgement to attain high standards of workmanship. Work activities include: designing and developing plans, specifications, detailed drawings, and lay-outs of land areas; and arranging contracts.

APTITUDES AND CAPACITIES: Architects normally require: learning ability to acquire a thorough knowledge of architectural principles and practices, and to compile and evaluate information to develop building designs and make reasoned judgments when negotiating contracts; verbal ability to understand the meaning and use of technical words and ideas associated with them, to use them effectively both in written and oral form; numerical ability to perform advanced mathematical computations quickly and accurately; spatial perception to design buildings and plan lay-outs of structures, using visual imagination to co-ordinate structural and ornamental elements into a unified design; form perception of observe pertinent detail in objects or in pictorial or graphic material and make visual comparisons and discriminations, and to see slight differences in shapes and shadings of figures and widths and lengths of lines; eye-hand-finger co-ordination to make precise measurements rapidly and accurately to prepare sketches or plans of buildings or landscaping; finger dexterity to manipulate small objects such as pencils, drawing pens and other draughting instruments; visual acuity - both near and far - colour discrimination, and depth perception to visualize objects in three dimensions.

TRAINING AND ENTRY REQUIREMENTS: Architects normally require: a four or five year program, in a university, leading to a bachelor's degree in architecture; or a two to three year course in architectural technology at a community college; AND four to seven years of on-the-job experience under the direction of a registered architect; and completion of examinations set by the provincial association of architects. Architects in all provinces must be registered members of their particular provincial association of architects.

ADVANCEMENT POSSIBILITIES: Architects may advance to 1131-110 MANAGER, ARCHITECTURAL SERVICE after acquiring considerable experience in directing, organizing and controlling the services of an architectural department.

TRANSFER POSSIBILITIES: A master's degree normally qualifies an individual for transfer to a teaching position in a university or a senior consultant's position in government or private industry.

OCCUPATIONAL TITLES:

2141-110 ARCHITECT

2141-114 LANDSCAPE ARCHITECT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	1	1	2	3	3	3	3	5	3	S47	I-B	6	8	876	9Y045

214/215A - RESEARCH, DESIGN AND DEVELOPMENT ENGINEERS

WORK PERFORMED: This chapter includes occupations concerned with conducting basic and applied research directed toward investigating and evaluating engineering and scientific principles and applying the results to the design and development of equipment, structures, processes, systems and products. Worker functions include: analyzing and synthesizing data collected from research and developmental studies to conceive a practical design; exercising considerable judgement in conducting qualitative and quantitative analyses and experiments to achieve high standards of design and workmanship; skilfully using technical equipment and work aids; and supervising technicians, technologists, craftsmen and other workers. Work activities include: developing and extending knowledge through exploratory research; using results of research to develop new and improved products, processes and systems in anticipation of market needs, and to reduce costs; preparing specifications required in installation, operation and maintenance; conferring with other engineers and scientists to solve problems of design and development; and providing consulting services to clients.

APTITUDES AND CAPACITIES: learning ability and intellectrual capacity to understand and apply the principles, concepts and knowledge of engineering relevant to research, design and development; verbal ability to understand the meaning of engineering terminology and ideas associated with them, and to communicate clearly, orally and in writing; numerical ability to apply advanced mathematical computations quickly and accurately; spatial perception to comprehend forms in space, understand relationships of plane and solid objects and to visualize finished products, the fitting together of parts and relationships of their movements; form perception to observe pertinent detail in objects or in pictorial or graphic materials, and to make visual comparisons and discriminations to see slight differences in shapes and shadings of figures, and widths and lengths of lines in drawings and designs; capacity to reach, handle, finger and feel objects and materials; visual acuity both near and far, depth perception, and a good field of vision; adaptability to conditions where there is a definite risk of bodily injury when working in and around construction sites and other engineering projects.

TRAINING AND ENTRY REQUIREMENTS: a four or five year university program leading to a bachelor's degree in engineering or applied science; and two or more years of on-the-job experience under the direction of a professional engineer. A master's or doctor's degree may be required for research and advanced design and development work. To practise as a professional engineer within the meaning of the Act, and to use the title "profesioonal engineer" - P. Eng. - registration with a provincial association of professional engineers is required. There are 2 methods of becoming a professional engineer. One is outlined above. The second method is by passing of examinations set by the appropriate provincial association of professional engineers plus two or more years of experience under the direction of a professional engineer.

ADVANCEMENT POSSIBILITIES: Workers may advance to 1131-118 MANAGER, ENGINEERING after acquiring considerable experience in planning, organizing, directing and controlling engineering programs. Engineers in government and industry may also advance within the grading systems that prevails. Some engineers become self-employed and establish themselves as consultants.

TRANSFER POSSIBILITIES: Transfers may occur for some within a specialization of their own field of employment. Others may transfer to teaching occupations in community colleges and universities, or in secondary schools provided they have the necessary qualifications and a teaching certificate.

OCCUPATIONAL TITLES:

2142-110 CHEMICAL ENGINEER, DESIGN & DEV.
2142-114 CHEMICAL ENGINEER, RESEARCH
2143-110 MATERIALS AND TESTING ENGINEER
2143-114 STRUCTURAL-DESIGN ENGINEER
2144-110 DESIGN & DEVELOPMENT ENGINEER, ELECTRICAL AND ELECTRONIC
2144-114 RESEARCH ENGINEER, ELECTRICAL AND ELECTRONIC
2147-110 POWER ENGINEER, MECHANICAL
2147-114 TOOL ENGINEER
2155-110 AEROSPACE ENGINEER, DESIGN AND DEVELOPMENT
2155-114 AEROSPACE ENGINEER, MASS PROPERTIES
2157-110 NUCLEAR ENGINEER
2159-110 AGRICULTURAL ENGINEER
2159-114 CERAMICS ENGINEER
2159-118 MARINE ENGINEER
2159-122 SHIP-CONSTRUCTION ENGINEER
2159-126 GAS & STEAM-DISTRIBUTION ENGINEER
2159-130 CRYOGENICS ENGINEER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	1	1	2	4	4	4	4	5	5	L4567	I-B6	6	8	78	0Y495
										4	4						

214/215B - PRODUCTION, CONSTRUCTION, INSTALLATION, OPERATION AND MAINTENANCE ENGINEERS

WORK PERFORMED: This chapter includes occupations concerned with advising on, and co-ordinating the technical control and improvement of manufacturing processes, executing production programs, and technical direction of erection, assembly, installation, servicing, repair and replacement of buildings, plants, machines and other equipment. Worker functions include: co-ordinating various kinds of engineering programs; analyzing data and making decisions; using considerable judgment in determining the most economical and feasible production methods to achieve high standards of quality, quantity and workmanship; skilfully using technical equipment and work aids; and supervising technicians, technologists, craftsmen and other workers. Work activities include: studying design proposals and providing advice concerning the most effective arrangement of equipment to achieve maximum economic production; planning and directing the construction of buildings, marine vessels, floating structures of all types, and electrical-transmission systems, and the installation and operation of equipment in mines, refineries, factories and other establishments; establishing and overseeing a regular maintenance program which includes inspection, cleaning, parts replacement and general overhaul; determining cause of an recommending preventive measures in controlling fires; and evaluating productivity of oil wells and reservoirs.

APTITUDES AND CAPACITIES: learning ability and intellectrual capacity to understand and apply engineering concepts and principles to production processes, construction programs, and the installation, operation and maintenance of equipment; verbal ability to understand the meaning of engineering terminology and ideas associated with them, and to communicate clearly, orally and in writing; numerical ability to apply advanced mathematical computations quickly and accurately; spatial perception to understand relationships of plane and solid objects, and to visualize finished products, relationship of parts of equipment and their movements; form perception to observe pertinent detail in objects or in pictorial or graphic material, and to make visual comparisons and discriminations to see slight differences in shapes and shadings of figures and widths and lengths of lines in drawings and designs; capacity to reach, handle, finger and feel objects and materials; visual acuity both near and far, depth perception, and a good field of vision; adaptability to conditions where there is a definite risk of bodily injury when working in and around construction sites and other engineering projects.

TRAINING AND ENTRY REQUIREMENTS: a 4 or 5 year university program leading to a bachelor's degree in engineering or applied science; and 2 or more years of on-the-job experience under the direction of a professional engineer. To practice as a professional engineer within the meaning of the Act, and to use the title "professional engineer" - P.Eng. - registration with a provincial association of professional engineers plus 2 or more years of experience under the direction of a professional engineer is required. There are 2 methods of becoming a professional engineer. One is outlined above. The second method is by the passing of examinations set by the appropriate provincial association of professional engineers plus 2 or more years of experinece under the direction of a professional engineer.

ADVANCEMENT POSSIBILITIES: Workers may advance to 1131-118 MANAGER, ENGINEERING after acquiring consicerable experience in assisting with planning, organizing, directing and controlling engineering programs. Workers in government and industry may advance within the grading system that prevails. Some Engineers become self-employed and establish themselves as consultants.

TRANSFER POSSIBILITIES: Transfers may occur for some within specializations of their own field of employment. Others may transfer to teaching occupations in community colleges and universities or in secondary schools, provided they have the necessary qualifications and a teaching certificate.

OCCUPATIONAL TITLES: (*Occupations numbered only by general category)

CHEMICAL ENGINEERS	2142-118
CIVIL ENGINEERS	2143-118 to 2143-154
ELECTRICAL ENGINEERS	2144-118 to 2144-162
MECHANICAL ENGINEERS	2147-118 to 2147-142
METALLURGICAL ENGINEERS	2151-110
MINING ENGINEERS	2153-110
PETROLEUM ENGINEERS	2154-110 to 2154-118
AEROSPACE ENGINEERS	2155-118 to 2155-134
ARCHITECTS AND ENGINEERS, N.E.C.	2159-134 to 2159-158

QUALIFICATIONS PROFILE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	2	2	2	2	2	4	4	4	4	5	4
	1	1	1		3	3				4	5

PA	EC	GED	SVP	INTS.	TEMPS.
L4567	B6	5	8	79	Y045

214/215C - INDUSTRIAL AND ENVIRONMENTAL ENGINEERS

WORK PERFORMED: This chapter includes occupations concerned with initating and developing efficient production procedures to manufacture high-quality units in large quantities at economic cost, while maintaining low production overhead, and with introducing procedures to control pollution. Worker functions include: co-ordinating and planning procedures; analyzing and compiling data; supervising the work of technicians and other workers; and skilfully using a variety ot technical equipment and work-aids. Work activities include: ascertaining production objectives and identifying problems; planning time and motion studies, and evaluating results against set standards; initiating or recommending changes in organization, work procedures, methods, equipment utilization and safety procedures; conducting health programs to control factors or stresses arising in a work situation which may cause inefficiency among workers; devising quality control procedures for production-line staff and other groups; developing new procedures for testing and evaluating raw materials and finished products; and studying pollution problems and recommending implementation of procedures for their control or elimination.

APTITUDES AND CAPACITIES: Industrial and Environmental Engineers require: learning ability and the intellectual capacity to understand and apply engineering concepts and principles to efficiency of operation and environmental control; verbal ability to understand the meaning of engineering terminology and ideas associated with them, and to communicate effectively orally and in writing; numerical ability to perform advanced mathematical computations quickly and accurately; spatial perception to comprehend forms in space and to visualize problems of plant engineering concerning installation, arrangement or operations of production equipment; form perception to observe pertinent detail in objects or in pictorial or graphic material, and to make visual comparisons and discriminations to see slight differences in shapes and shadings of figures, and widths and lengths of lines in drawings and designs; visual acuity both near and far, depth perception and a good field of vision; adaptability to conditions where there is a definite risk of bodily injury when working in and around production lines and other engineering projects; adaptability to conditions where there are hazards from fumes, odours, toxic dust, vapours and mists.

TRAINING AND ENTRY REQUIREMENTS: Industrial and Environmental Engineers normally require: a four-or-five year university program leading to a bachelor's degree in engineering or applied science; and two or more years of on-the-job experience under the direction of a professional engineer. To practise as a professional engineer within the meaning of the Act, and to use the title "professional engineer" - P. Eng. - registration with a provincial association of professional engineers is required. There are two methods of becoming a professional engineer. One is outlined above. The second method is by the passing of an examinations set by the appropriate provincial association of professional engineers plus two or more years of experience under the direction of a professional engineer.

ADVANCEMENT POSSIBILITIES: Engineers may advance to 1131-118 MANAGER, ENGINEERING after acquiring considerable experience in assisting with planning, organizing, directing and controlling engineering programs. Engineers in government and industry may also advance within the grading system that prevails. Some engineers become self-employed and establish themselves as consultants.

TRANSFER POSSIBILITIES: Transfers may occur for some within specializations of their own field of employment. Others may transfer to teaching occupations in community colleges and universities, or in secondary schools, provided they have the necessary qualifications and a teaching certifate.

OCCUPATIONAL TITLES

2143-130	ENVIRONMENTAL ENGINEER
2145-110	INDUSTRIAL ENGINEER, GENERAL
2145-114	INDUSTRIAL HYGIENIST
2145-118	INDUSTRIAL-SAFETY ENGINEER
2145-122	TIME-STUDY ENGINEER
2145-126	MANUFACTURING ENGINEER
2145-130	METHODS ENGINEER
2145-134	PRODUCTION ENGINEER
2145-138	QUALITY-CONTROL ENGINEER

QUALIFICATIONS PROFILE

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	2	3	4	4	4	4	5	4	S-L567	I67	5	8	796	Y09754
	1	1	1		2	3					5						

2160 - SUPERVISORS, OTHER OCCUPATIONS IN ARCHITECTURE & ENGINEERING

WORK PERFORMED: This chapter includes occupations concerned with supervising and co-ordinating the activities of surveyors, draughtsmen, and architectural and engineering technologists and technicians. Work functions include: co-ordinating and determining or interpreting work procedures; supervising workers by assigning duties, maintaining harmonious relations and promoting efficiency. Work activities include: studying assignments and determining manpower requirements; estimating materials and supplies; establishing methods and assigning duties to meet work schedules; requisitioning materials and supplies; recommending or initiating personnel actions; maintaining personnel records; training workers; ensuring quality of work meets standards; and preparing progress or other reports.

APTITUDES AND CAPACITIES: Supervisors in this chapter require: learning ability and intellectual capacity to understand and apply supervisory principles and practices and those of his speciality, such as surveying, draughting or a particular branch of architectural or engineering technology, and the reasoning ability to effectively plan, organize and expedite work activities; verbal ability to comprehend scientific and technical terminology, and communicate effectively with superiors and subordinates; numerical ability to verify quality control arithmetic processes, and complicated survey, draughting or technical calculations quickly and accurately; spatial perception to visualize objects of two or three dimensions and their relationship to each other from architectural and engineering drawings; form perception to observe pertinent detail in architectural or engineering drawings, such as width and length of lines, or to compare details on photographs and maps, or to observe design imperfections on products, such as shape, size or irregular surfaces; clerical perception to perceive detail in tabular material and to observe differences in copy and avoid perceptual errors in arithemetic computation; visual acuity both near and far, depth perception and accommodation to check drawings or to examine products or processes.

TRAINING AND ENTRY REQUIREMENTS: Supervisors, Architectural or Engineering Technologists usually require: secondary school graduation, and depending on the complexity of the occupation; graduation from a community college program of two to three years in an architectural or engineering technology specialty and three or more years of on-the-job experience; or four or more years of on-the-job experience supplemented by part-time studies in their architectural or engineering specialty. Supervisors, Draughtsmen usually require: secondary school graduation preferably with emphasis on mathematics and draughting; a two to four year apprenticeship or similar form of on-the-job training; OR graduation in draughting from an institute of technology or community college; one to two years on-the-job training; AND at least two years of experience as a draughtsman. Supervisors, Surveyors usually require: a bachelor's degree in civil engineering with surveying option or surveying engineering; OR secondary school graduation at the university entrance level; complete an articled apprenticeship program of at least four years; AND pass examinations of a federal or provincial board of examiners' and at least two years experience as a surveyor.

ADVANCEMENT POSSIBILITIES: Advancement opportunities are limited, however, supervisors with a potential for business and administration may establish their own services according to their basic profession. With the aditional education, training and experience these supervisors could advance to management occupations, such as 1131-110 MANAGER, ARCHITECTURAL SERVICE or 1131-118 MANAGER, ENGINEERING.

TRANSFER POSSIBILITIES: Opportunities for transfer are limited for supervisors in architectural or engineering technology or surveying; however, Supervisor, Draughtsmen could transfer to other specialties in draughting with little additional training and experience.

OCCUPATIONAL TITLES:

2160-110	SUPERVISOR, ARCHITECTUAL & ENGINEERING TECHNOLOGISTS & TECHNICIANS
2160-114	SUPERVISOR, DRAUGHTSMEN
2160-118	SUPERVISOR, SURVEYORS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	2	2	3	4	4	4	5	4	S-L567	I-B	5-4	8	257	4501
	3	3	3	3	3						3						

2161-A SURVEYORS

WORK PERFORMED: This chapter includes occupations concerned with conducting marine, land and subsurface surveys for the purpose of making maps, determining navigable channels, planning construction projects, delineating topographical features, and measuring and establishing boundaries and exact locations. Worker functions include: planning and co-ordinating surveys; making precise measurements while skilfully using survey instruments, technical equipment and other work aids; calculating latitude, longitude, angles, areas and other information for making maps; compiling and classifying information for charts, maps, legal descriptions and land-usage planning; supervising activities of survey crews; and calling out readings to note keeper. Work activities include: locating positions of rocks, reefs, shoals and aids to navigation and determining nature and depth of marine bottom; determining exact location and measurement of points, elevation lines, areas and contours of earth's surfaces; preparing land descriptions and drawings for land-usage planning; plotting data on field sheets; keeping records of work done or data obtained; and searching titles and other survey records in survey or registry offices.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability and intellectual capacity to understand and apply the principles of surveying; numerical ability to perform mathematical calculations quickly and accurately as when determining angular and linear measurements and other information for map making; spatial perception to visualize and plot on maps and field sheets such data as elevations, distances, contour lines and other topographical features; form perception to obtain precise readings from surveying instruments, to examine maps or aerial photographs, to prepare drawings, and to make or revise maps; eye-hand-finger co-ordination to make rapid and precise movements when adjusting and calibrating various types of survey instruments; finger dexterity to manipulate small objects with fingers when making precise adjustments on survey instruments to obtain accurate readings.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: a bachelor's degree in civil engineering with surveying option or surveying engineering; OR secondary school graduation at the university entrance level; complete an articled apprenticeship program of at least four years; AND pass examinations of a federal or provincial board of examiners.

ADVANCEMENT POSSIBILITIES: Surveyors with leadership qualities and supervisory potential may advance to 2160-118 SUPERVISOR, SURVEYORS. Those with a potential for business and administration may establish their own survey service.

TRANSFER POSSIBILITIES: Transfers may be to the occupations of 2169-110 PHOTOGRAMMETRIST or 2169-114 AERIAL-PHOTOGRAPH ANALYST. Surveyors with a degree in civil engineering may transfer to some occupations in that field.

OCCUPATIONAL TITLES:

2161-110	HYDROGRAPHIC SURVEYOR
2161-114	SURVEYOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	2	2	3	3	3	3	4	3	M234567	B46	5	7	791	Y0451

2161-B SURVEYORS

WORK PERFORMED: This chapter includes occupations concerned with conducting marine, land and subsurface surveys for the purpose of making maps, determining navigable channels, planning construction projects, delineating topographical features, and measuring and establishing boundaries and exact locations. Worker functions include: planning and co-ordinating surveys; making precise measurements while skilfully using survey instruments, technical equipment and other work aids; calculating latitude, longitude, angles, areas and other information for making maps; compiling and classifying information for charts, maps, legal descriptions and land-usage planning; supervising activities of survey crews; and calling out readings to note keeper. Work activities include: locating positions of rocks, reefs, shoals and aids to navigation and determining nature and depth of marine bottom; determining exact location and measurement of points, elevation lines, areas and contours of earth's surfaces; preparing land descriptions and drawings for land-usage planning; plotting data on field sheets; keeping records of work done or data obtained; and searching titles and other survey records in survey or registry offices.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability and intellectual capacity to understand and apply the principles of surveying; numerical ability to perform mathematical calculations quickly and accurately as when determining angular and linear measurements and other information for map making; spatial perception to visualize and plot on maps and field sheets such data as elevations, distances, contour lines and other topographical features; form perception to obtain precise readings from surveying instruments, to examine maps or aerial photographs, to prepare drawings, and to make or revise maps; eye-hand-finger co-ordination to make rapid and precise movements when adjusting and calibrating various types of survey instruments; finger dexterity to manipulate small objects with fingers when making precise adjustments on survey instruments to obtain accurate readings.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: a two to three-year program in surveying given by an institute of technology or community college; and two to four years of on-the-job training and experience.

ADVANCEMENT POSSIBILITIES: Instrument men may advance to the occupation of Surveyor in accordance with the requirements set forth in the training and entry section of this chapter.

TRANSFER POSSIBILITIES: Transfer opportunities for instrument men are limited, but may be to occupations, such as 2117-118 GEOLOGICAL TECHNOLOGIST, 2117-122 GEOPHYSICAL TECHNOLOGIST and even to 7516-110 TIMBER CRUISER where the work performed and instuments used are somewhat similar.

OCCUPATIONAL TITLES:

2161-118 INSTRUMENT MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	2	2	3	3	3	3	4	3	M234567	B26	4	7	791	YO

2161 -C SURVEYORS

WORK PERFORMED: This chapter includes occupations concerned with conducting marine, land and subsurface surveys for the purpose of making maps, determining navigable channels, planning construction projects, delineating topographical features, and measuring and establishing boundaries and exact locations. Worker functions include: planning and co-ordinating surveys; making precise measurements while skilfully using survey instruments, technical equipment and other work aids; calculating latitude, longitude, angles, areas and other information for making maps; compiling and classifying information for charts, maps, legal descriptions and land-usage planning; supervising activities of survey crews; and calling out readings to note keeper. Work activities include: locating positions of rocks, reefs, shoals and aids to navigation and determining nature and depth of marine bottom; determining exact location and measurement of points, elevation lines, areas and contours of earth's surfaces; preparing land descriptions and drawings for land-usage planning; plotting data on field sheets; keeping records of work done or data obtained; and searching titles and other survey records in survey or registry offices.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and carry out instructions when assisting in survey operations; eye-hand co-ordination to rapidly and accurately manipulate surveyor's chain, record field notes and cut brush; manual dexterity to move hands and arms rapidly and accurately when swinging an axe or moving and holding a stadia rod; capacity to perform medium work requiring the lifting of objects weighing a maximum of twenty pounds; capacity to climb over rocks and rough terrain and maintain body equilibrium to prevent falling when walking, standing, crouching or running on narrow, slippery or uneven surfaces; capacity to stoop, kneel, crouch or crawl when positioning survey instruments during survey operations; capacity to extend the hands and arms in any direction, seizing and holding objects and working with fingers while operating and adjusting instruments; capacity to impart information or instructions orally to field men during the course of a survey operation; capacity to hear especially when using sonar apparatus to determine depths and other electronic instruments that use sound tones to indicate changes in depths or distances; visual acuity both near and far, and depth perception especially when examining photographs stereoscopically and adjusting lenses to bring objects into focus; capacity to work in conditions with moisture content sufficient to cause marked bodily discomfort while working from hydrographic survey vessels and in marshes and swamps; capacity to work in situations where there is definite risk of bodily injury especially when surveying rock and mountainous terrain or in areas where the footing is slippery and uncertain.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: ten to twelve years general education; and three to six months on-the-job training and experience with a survey team.

ADVANCEMENT POSSIBILITIES: Surveyor helpers may advance to the occupation of instrument man in accordance with the requirements set forth in the training and entry section of this chapter.

TRANSFER POSSIBILITIES: Surveyor helpers may transfer to the occupation 4199-210 SURVEY NOTE-KEEPER or 4139-166 LAND MEASURER. Many other transfer possibilities exist such as to various helper occupations, and to some occupations in Chapter 7195, NURSERY AND RELATED WORKERS involving landscaping, caring for parks and other grounds and cutting brush.

OCCUPATIONAL TITLES:

2161-122 SURVEYOR HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	3	4	3	4	5	M234567	B26	3	4	91	12

2163 DRAUGHTSMEN

261, 581

WORK PERFORMED: This chapter includes occupations concerned with preparing working plans and detailed drawings from designers' sketches and specifications for engineering and manufacturing purposes, preparing or revising maps and charts, and preparing illustrations dealing with assembly, installation, operation, maintenance and repair of euqipment. Worker functions include: working to close tolerances to produce detailed drawings of a high standard, while skilfully manipulating draughting instruments and other technical equipment; computing mathematical details and determining scaled dimensions for drawings; and analyzing and compiling information from preliminary sketches and relevant data. Work activities include: advising on problems of interpretation of drawings for production personnel; determining suitability of design, materials, tooling and fabrication sequences, utilizing knowledge of manufacturing methods; preparing bills of materials and estimating costs; and tracing plans and drawings prepared by other draughtsmen.

APTITUDES AND CAPACITIES: learning ability to understand and apply the principles of draughting techniques and to acquire and utilize a knowledge of various machines, building materials, engineering practices, mathematics, and other physical sciences; numerical ability to use arithmetic, algebraic, and geometric procedures to calculate scaled dimensions, stresses, fatigue factors and other data; spatial perception to perceive land contours from stereoscapic aerial photographs, to visualize three-dimensional objects and forms when representing them in two-dimensional plans or drawings,and to visualize relations of parts to one another or to the whole structure for comprehension of product operation and construction; form perception to examine engineering drawings, photographs, sketches and maps, to prepare accurate detailed drawings, and to use precision measuring instruments and other draughting equipment; clerical perception to avoid errors in numerical calculations, to recognize and use draughting symbols, and to take readings from measuring instruments; finger dexterity to manipulate and make fine adjustments to draughting instruments; near visual acuity, depth perception and colour discrimination.

TRAINING AND ENTRY REQUIREMENTS: secondary school graduation preferably with emphasis on mathematics and draughting and a two to four year appreticeship or similar form of on-the-job training; OR graduation in draughting from an institute of technology or community college and one to two years on-the-job training. For 2163-176 TECHNICAL ILLUSTRATOR, a two to three year community college program in art, photography and printing, followed by one to two years of on-the-job training; for 2163-178 TRACER three to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers with sufficient experience, leadership qualities and supervisory potential may advance to 2160-114 SUPERVISOR, DRAUGHTSMEN.

TRANSFER POSSIBILITIES: Transfers may occur within the chapter since the initial training for all workers has a common base. However, there are some specialties which require additional training and experience.

OCCUPATIONAL TITLES:

2163-110 DRAUGHTSMAN, GENERAL
2163-114 CARTOGRAPHER
2163-118 DESIGN CHECKER
2163-122 DETAIL DRAUGHTSMAN
2163-126 DRAUGHTSMAN, ARCHITECTURAL
2163-130 DRAUGHTSMAN, CIVIL
2163-134 DRAUGHTSMAN, COMMERCIAL
2163-138 DRAUGHTSMAN, ELECTRICAL
2163-142 DRAUGHTSMAN, ELECTRONIC
2163-146 DRAUGHTSMAN, HEATING AND VENTILATING
2163-150 DRAUGHTSMAN, MARINE
2163-154 DRAUGHTSMAN, MECHANICAL
2163-158 DRAUGHTSMAN, MINE
2163-162 DRAUGHTSMAN, ONE-TENTH
2163-164 DRAUGHTSMAN, PETROLEUM EXPLORATION
2163-168 DRAUGHTSMAN, PIPE ORGAN
2163-172 EDITOR, MAP
2163-176 TECHNICAL ILLUSTRATOR
2163-178 TRACER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	3	2	2	2	3	2	2	3	5	4	S4567	I	4	7	791	0Y
							3	3			3						

WORK PERFORMED: This chapter includes occupations concerned with technological and technical work in an engineering specialization, such as aerospace, chemical, civil, electrical, electronic, industrial, mechanical, mining, nuclear, petroleum, metallurgical and petrochemical engineering, or in architecture. Worker functions include: examining and evaluating data obtained from engineering studies and experiments; collating and classifying information for use by engineers and other technical workers; testing and analyzing materials and products by qualitative and quantitative analyses; and skilfully using and controlling technical equipment and tools to produce items, such as accurate scale drawings, fabricate one-of-a-kind components and calibrate equipment. Work activities include: assisting engineers and other technical workers in research, design and development of products, and to devise systems and processes for production; constructing, installing, manufacturing, repairing, calibrating or modifying standard equipment or systems; incorporating design details into drawings; determining work procedures; diagnosing complex test equipment or process malfunctions; and preparing charts, graphs and other supporting data for reports.

APTITUDES AND CAPACITIES: Architectural and Engineering Technologists and Technicians require: learning ability and the intellectual capacity to understand and apply architectural or engineering principles and methods to research, design development, production, or laboratory activities; verbal ability to comprehend scientific and technical terminology, and to communicate effectively, both orally and in writing, when conversing with architects or engineers, or preparing reports; numerical ability to quickly and accurately make arithmetic, algebraic, geometric or trigonometric computations for the solution of architectural or engineering problems; spatial perception to interpret or prepare architectural or engineering drawings and visualize arrangement and relationship of parts and sub-assemblies; form perception to observe relevant detail and make visual comparisons when examining drawings, or analyzing and testing materials and products for adherence to specifications; capacity to reach and handle tools and materials when testing products, preparing scale drawing and fabricating components; capacity to hear sounds of varying intensity or pitch when using sound producing or recording equipment; visual acuity, depth perception and good field of vision when working with magnification devices and draughting or survey instruments; capacity to work under conditions where there is a risk of injury, or exposure to atmospheric conditions such as dust, gases, vapors, mists or liquids.

TRAINING AND ENTRY REQUIREMENTS: Architectural and Engineering Technologists and Technicians normally require: Technologists secondary school graduation; and depending on the complexity of the occupation, either graduation from a community college program of two to three years in an architectural or engineering technology specialty; and two or more years of on-the-job experience; or four or more years of on-the-job experience supplemented by part-time studies in the architectural or engineering specialty.

ADVANCEMENT POSSIBILITIES: Individuals with sufficient experience, leadership ability and supervisory potential may advance to the supervisor occupation 2160-110 SUPERVISOR, ARCHITECTURAL AND ENGINEERING TECHNOLOGISTS AND TECHNICIANS.

TRANSFER POSSIBILITIES: Transfer for workers in both clusters is limited and usually occurs between occupations within each cluster.

OCCUPATIONAL TITLES:

2165-110	AEROSPACE-ENGINEERING TECHNOLOGIST
2165-114	ARCHITECUTRAL TECHNOLOGIST
2165-118	CHEMICAL-ENGINEERING TECHNOLOGIST
2165-122	CIVIL-ENGINEERING TECHNOLOGIST
2165-126	ELECTRICAL-ENGINEERING TECHNOLOGIST
2165-130	ELECTRONIC-ENGINEERING TECHNOLOGIST
2165-134	INDUSTRIAL-ENGINEERING TECHNOLOGIST
2165-138	MARINE-ENGINEERING TECHNOLOGIST
2165-142	MECHANICAL-ENGINEERING TECHNOLOGIST
2165-146	METALLURGICAL-ENGINEERING TECHNOLOGIST
2165-150	MINING-ENGINEERING TECHNOLOGIST
2165-154	UCLEAR-ENGINEERING TECHNOLOGIST
2165-158	PETROCHEMICAL-ENGINEERING TECHNOLOGIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{2}$	$\underline{2}$	$\underline{2}$	$\underline{2}$	$\underline{2}$	3	3	3	4	5	4	L4567	I-B67	5	7	791	0Y
				$\underline{3}$	$\underline{3}$		4	4	3								

2165-B ARCHITECTURAL & ENGINEERING TECHNOLOGISTS & TECHNICIANS

WORK PERFORMED: This chapter includes occupations concerned with technological and technical work in an engineering specialization, such as aerosplace, chemical, civil, electrical, electronic, industrial, mechanical, mining, nuclear, petroleum, metallurgical and petrochemical engineering, or in architecture. Worker functions include: examining and evaluating data obtained from engineering studies and experiments; collating and classifying information for use by engineers and other technical workers; testing and analyzing materials and products by qualitative and quantitative analyses; and skilfully using and controlling technical equipment and tools to produce items, such as accurate scale drawings, fabricate one-of-a-kind components and calibrate equipment. Work activities include: assisting engineers and other technical workers in research, design and development of products, and to devise systems and processes for production; constructing, installing, manufacturing, repairing, calibrating or modifying standard equipment or systems; incorporating design details into drawings; determining work procedures; diagnosing complex test equipment or process malfunctions; and preparing charts, graphs and other supporting data for reports.

APTITUDE AND CAPACITIES: learning ability and the intellectual capacity to understand and apply architectural or engineering principles and methods to research, design development, production, or laboratory activities; verbal ability to comprehend scientific and technical terminology, and to communicate effectively, both orally and in writing, when conversing with architects or engineers, or preparing reports; numerical ability to quickly and accurately make arithmetic, algebraic, geometric or trigonometric computations for the solution of architectural or engineering problems; spatial perception to interpret or prepare architectural or engineering drawings and visualize arrangement and relationship of parts and sub-assemblies; form perception to observe relevant detail and make visual comparisons when examining drawings, or analyzing and testing materials and products for adherence to specifications; capacity to reach and handle tools and materials when testing products, preparing scale drawings and fabricating components; capacity to hear sounds of varying intensity or pitch when using sound producing or recording equipment; visual acuity, depth perception and good field of vision when working with magnification devices and draughting or survey instruments; capacity to work under conditions where there is a risk of injury, or exposure to atmospheric conditions such as dust, gases, vapors, mists or liquids; ability to move the fingers to manipulate small objects rapidly and accurately to adjust instruments and machines; manual dexterity to install and tighten various parts of machinery and other apparatus.

TRAINING AND ENTRY REQUIREMENTS: the training and experience is similar to that for Technologists, but usually of a shorter duration.

ADVANCEMENT POSSIBILITIES: Workers may advance to technologist occupations within their specialization with additional training and experience.

TRANSFER POSSIBILITIES: Transfers for workers is limited and usually occurs between occupations within the cluster.

OCCUPATIONAL TITLES:

2165-210 AEROSPACE-ENGINEERING TECHNICIAN
2165-214 AGRICULTURAL-ENGINEERING TECHNICIAN
2165-218 CHEMICAL-ENGINEERING TECHNICIAN
2165-222 CIVIL-ENGINEERING TECHNICIAN
2165-226 ELECTRICAL-ENGINEERING TECHNICIAN
2165-230 ELECTRONIC-ENGINEERING TECHNICIAN
2165-234 GEOLOGICAL-ENGINEERING TECHNICIAN
2165-238 INDUSTRIAL-ENGINEERING TECHNICIAN
2165-242 MARINE-ENGINEERING TECHNICIAN
2165-246 MECHANICAL-ENGINEERING TECHNICIAN
2165-250 METALLURGICAL-ENGINEERING TECHNICIAN
2165-254 MINING-ENGINEERING TECHNICIAN
2165-258 NUCLEAR-ENGINEERING TECHNICIAN
2165-262 PETROCHEMICAL-ENGINEERING TECHNICIAN
2165-266 PETROLEUM-ENGINEERING TECHNICIAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	3	3	3 2	3	3	3	3	3	5	4	L-M4567	I-B67	4	6	791	0Y

2181 - MATHEMATICIANS, STATISTICIANS AND ACTUARIES 038, 068, 088, 188

WORK PERFORMED: This chapter includes occupations concerned with conducting research to increase the knowledge of the science of mathematics and with developing and applying mathematical techniques to solve problems in life, physical, social and actuarial sciences and engineering. Worker functions include: planning and co-ordinating mathematical, actuarial and statistical studies; and synthesizing and analyzing data collected to discover and develop concepts or interpretations based on these studies. Work activities include: conducting research in mathematical and statistical theory; developing statistical methodology, and insurance, annuity and pension programs; and conducting surveys to obtain statistical data.

APTITUDES AND CAPACITIES: Mathematicians, Statisticians and Actuaries require: learning ability to understand, develop and apply mathematical and statistical methods, formulae and relationships; verbal ability to understand and use the scientific terminology associated with mathematics, and to communicate research findings through reports, lectures, and publications; numerical ability to represent and relate abstract ideas and concepts numerically, and to understand and perform advanced mathematical and statistical calculations; spatial perception to comprehend and think visually in geometric forms, and to present data in the form of tables and graphs; clerical perception to perceive detail in numerical material, and to avoid errors in mathematical computations.

TRAINING AND ENTRY REQUIREMENTS: Mathematicians, Statisticians and Actuaries normally require: a bachelor's degree in science with a major in pure or applied mathematics, and additional courses in such disciplines as statistics, biology, agriculture, economics, chemistry, commerce or finance. For higher level positions or basic research, a master's degree or doctorate may be required.

ADVANCEMENT POSSIBILITIES: Mathematicians, Statisticians and Actuaries with the required ability and qualifications may advance to managerial occupations in Chapter 113/114, under Financial Management Occupations.

TRANSFER POSSIBILITIES: Statisticians may transfer, within various specializations, because mathematics is fundamental in many fields, such as engineering, economics and science. Possibilities of transfer therefore exist to other specializations in these fields. Mathematicians, Statisticians and Actuaries, with the necessary qualifications, may transfer to teaching positions in community colleges or universities.

OCCUPATIONAL TITLES:

2181-110	MATHEMATICIAN, RESEARCH
2181-114	STATISTICIAN, MATHEMATICAL
2181-118	ACTUARY
2181-122	OPERATIONS-RESEARCH ANALYST
2181-126	DEMOGRAPHER
2181-130	MATHEMATICIAN, APPLIED
2181-134	STATISTICIAN, APPLIED
2181-138	STATISTICIAN, BIOLOGICAL AND AGRICULTURAL SCIENCE
2181-142	STATISTICIAN, BUSINESS AND ECONOMICS
2181-146	STATISTICIAN, PHYSICAL SCIENCE AND ENGINEERING
2181-150	STATISTICIAN, SOCIAL SCIENCE
2181-154	STATISTICIAN, VITAL

QUALIFICATIONS PROFILE:

APT.	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	1	3	3	2	4	4	4	5	5	S	I	6-5	9-8	78	0941
				2													
				1													

2183-A SYSTEMS ANALYSTS, COMPUTER PROGRAMMERS AND RELATED OCCUPATIONS 131, 231

WORK PERFORMED: This chapter includes occupations concerned with planning, implementing and controlling electronic-data-processing services, and the programming of computer systems. Worker functions include: analyzing and compiling engineering, scientific and business data to determine computer programming requirements; coordinating and implementing electronic-data-processing services to improve the economy, efficiency and operation of an establishment; and writing programs in computer-process language for specific applications. Work activities include: studying computer systems; conferring with systems analysts or departmental representatives to resolve questions of intent, data input and retrieval; examining design data and drawings to determine intent of designer and visualize configuration of work piece; preparing data-flow charts and block diagrams of equipment layout; writing computer programs in symbolic form to produce information required; and marking code sheets to indicate relationship between code and program steps.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the application, installation and operation of various electronic-data-processing systems and the ability to understand and apply the basic principles governing engineering, scientific and business practices, coupled with reasoning ability to solve problems concerning them, with ingenuity and resourcefulness; verbal ability to understand scientific and business terms and computer terminlogy, and to communicate clearly and efficiently with establishment officials; numerical ability to understand and apply advanced mathematical principles to scientific and business systems, and to write programs in computer language; spatial perception to comprehend forms in space, such as equipment lay-out and design configurations of computer systems; clerical ability to discern pertinent detail in written material to avoid errors in tabular material and mathematical computations; near visual acuity to see symbols and details on process-flow and other charts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: Systems Analysts,a bachelor's degree in mathematics, engineering or science; and up to four years of on-the-job training. Programmers,secondary school graduation with emphasis on mathematics and science; and up to four years of on-the-job training; OR graduation from a course in computer programming at an institute of technology or community college; and two to three years on on-the-job training.

ADVANCEMENT POSSIBILITIES: Systems Analysts with several years experience in planning, organizing, directing and controlling the analyses of establishment operations may advance to 1149-134 MANAGER, METHODS AND PROCEDURES, or 1131-114 MANAGER, DATA PROCESSING AND SYSTEMS ANALYSIS. Programmers may advance to Systems Analysts, and Programmers.

TRANSFER POSSIBILITIES: There is little provision for transfer within this chapter however, personnel in this chapter may transfer to teaching occupations in institutes of technology or community colleges.

OCCUPATIONAL TITLES:

2183-110 SYSTEMS ANALYST BUSINESS, ELECTRONIC DATA-PROCESSING
2183-114 SYSTEMS ANALYST ENGINEERING-SCIENTIFIC, ELECTRONIC DATA PROCESSING
2183-118 PROGRAMMER, BUSINESS
2183-122 PROGRAMMER, ENGINEERING AND SCIENTIFIC

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	2	3	3	4	4	4	5	4	S567	I	5	8-7	798	9014
				3							5	S67				79	90

2183-C SYSTEMS ANALYSTS, COMPUTER PROGRAMMERS AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with planning, implementing and controlling electronic-data-processing services, and the programming of computer systems. Worker functions include: analyzing and compiling engineering, scientific and business data to determine computer programming requirements; coordinating and implementing electronic-data-processing services to improve the economy, efficiency and operation of an establishment; and writing programs in computer-process language for specific applications. Work activities include: studying computer systems; conferring with systems analysts or departmental representatives to resolve questions of intent, data input and retrieval; examining design data and drawings to determine intent of designer and visualize configuration of work piece; preparing data-flow charts and block diagrams of equipment layout; writing computer programs in symbolic form to produce information required; and marking code sheets to indicate relationship between code and program steps.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the basic principles of computer programming and apply them to the preparation of computer programs; verbal ability to understand written instructions, computer terminology and prepare computer programs in a clear and concise manner which detail the various instructions in logically written sequence; numerical ability to understand basic mathematical principles governing various programs and apply them in analyzing results of programs; clerical ability to discern pertinent detail in written material to avoid errors in tabular material and mathematical computations; near visual acuity to see symbols and details on process-flow and other charts.

TRAINING AND ENTRY REQUIREMENTS: Programmers,
Detail normally require: secondary school graduation with emphasis on science and mathematics; and one to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Systems Analysts with several years of experience in planning, organizing, directing and controlling the analyses of establishment operations may advance to 1149-134 MANAGER, METHODS AND PROCEDURES, or 1131-114 MANAGER, DATA PROCESSING AND SYSTEMS ANALYSIS. Programmers may advance to Systems Analysts, and Programmers, Detail may advance to other programming occupations in this chapter, provided they acquire the necessary experience and undertake additional studies prescribed by the organization for which they are employed.

TRANSFER POSSIBILITIES: There is little provision for transfer within this chapter however, personnel in this chapter may transfer to teaching occupations in institutes of technology or community colleges.

OCCUPATIONAL TITLES:
2183-130 PROGRAMMER, DETAIL

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	3	2	4	4	4	5	5	S67	I	4	6	97	09

2311 - ECONOMISTS

WORK PERFORMED: This chapter includes occupations concerned with conducting research and developing and applying principles and theories of economics to formulate plans for the solution of economic problems arising from the production and distribution of goods and services. Worker functions include: synthesizing or analyzing economic and statistical data and development interpretations or economic theories; and communicating with people to convey or exchange information. Work activities include: conducting research into the mathematical basis of the science of economics, developing models to illustrate and forecast economic behaviour and patterns; devising methods for collection and analysis of economic and statistical data, and compiling and interpreting such data; preparing reports, estimates and forecasts based on studies in economic fields and on analyzed and interpreted data; advising private industrial concerns or government agencies on economic questions in a specialized field such as finance, taxation, international trade, labour, agriculture or industrial production; and investigating present and potential markets for particular goods and services.

APTITUDES AND CAPACITIES: Economists require: learning ability to acquire, understand and apply the principles and theories of economics and reasoning ability to make judgments in the collection, interpretation and application of economic data; verbal ability to understand the meanings of words and ideas associated with them, to express ideas clearly, and to communicate effectively with others; numerical ability to make statistical computations quickly and accurately; clerical perception to perceive pertinent detail in written or tabular material: near-visual acuity to constantly work with numbers and various tabular materials.

TRAINING AND ENTRY REQUIREMENTS: Economists normally require: an honours degree in economics; OR university graduation in another discipline with acceptable courses; and several years of on-the-job experience in the field of economics. A master's or doctor's degree is required for teaching positions in universities and for specialized research studies.

ADVANCEMENT POSSIBILITIES: Advancement to more senior positions depends on experience, development of supervisory or managerial abilities, and specialization in one or several areas of knowledge.

TRANSFER POSSIBILITIES; Transfer possibilities are normally limited to movement within the field of the specialization. Transfers, however, do occur between positions in private industry and positions in the federal and provincial governments. Some economists may transfer to lecturing and/or research positions in universities, provided they possess the necessary qualifications.

OCCUPATIONAL TITLES:

2311-110	SUPERVISOR, ECONOMIC RESEARCH
2311-114	ECONOMIST, GENERAL
2311-118	AGRICULTURAL ECONOMIST
2311-122	DEVELOPMENT ECONOMIST
2311-126	ECONOMETRICIAN
2311-130	FINANCIAL ECONOMIST
2311-134	INDUSTRIAL ECONOMIST
2311-138	INTERNATIONAL-TRADE ECONOMIST
2311-142	LABOUR ECONOMIST
2311-146	MATHEMATICAL ECONOMIST
2311-150	PRICE ECONOMIST
2311-154	TAX ECONOMIST
2311-158	MARKET-RESEARCH ANALYST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	1	4	4	2	4	4	4	5	5	S7	I	6	8	768	90Y4

2313 - SOCIOLOGISTS, ANTHROPOLOGISTS & RELATED SOCIAL SCIENTISTS

WORK PERFORMED: This chapter includes occupations concerned with studying the origin, development and functioning of human societies and cultures, man's evolution and social patterns, and interrelationships of families and groups of people. Worker functions include: synthesizing and analyzing data relating to the origin, development, evolution, way of life and social relationships of groups of human beings; and communicating societies and cultures; reconstructing records of extinct cultures; investigating social phenomena; and preparing reports and making recommendations.

APTITUDES AND CAPACITIES: Anthropologists and Sociologists require: learning ability to understand, acquire and apply the principles, theories and methods of study in the fields of sociology and anthropology; verbal ability to understand and use terminology associated with the fields of sociology, and to communicate ideas effectively through such means as reports, lectures and publications. Additionally, for Anthropologists: spatial perception to visualize past human activities by studying the physical arrangement of material remains, obtained from archeological exavations; form perception to examine the archeological remains, human biology and cultural artifacts of human cultures.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: a master's degree in sociology or anthropology; or for teaching in universities, or for advanced research, specialization in one or more areas leading to a doctoral degree.

ADVANCEMENT POSSIBILITIES: Advancement for Sociologists and Anthropoligists associated with universities in research or teaching positions is to the professor level, or to such occupations as 2711-110 DEPARTMENT CHAIRMAN, COLLEGE OR UNIVERSITY, 1132-110 DIRECTOR, MUSEUM or 2350-110 CURATOR, MUSEUM.

TRANSFER POSSIBILITIES: Transfer for Sociologists and Anthropologists may be to other fields, such as education, public service, private industry, welfare or non-profit services; for example, 2711-146 UNIVERSITY TEACHER, SOCIAL SCIENCES and 2353-130 CATALOGUER, MUSEUM. Transfer to other specializations within the disciplines is possible with some further academic training.

OCCUPATIONAL TITLES:

2313-110	ANTHROPOLOGIST	2313-114	SOCIOLOGIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	3	2	2	3	4	4	4	5	4	L56	I	6	8	7684	90571
				4	4						5						

2315 - PSYCHOLOGISTS

008, 061, 068, 108

WORK PERFORMED: This chapter includes occupations concerned with collecting, interpreting and applying scientific data relating to human behaviour and mental processes. Worker functions include: synthesizing or analyzing data collected through experimentation, testing and observation; determining courses of action to be taken on the basis of analysis of data; mentoring; and communciating with people to convey or exchange information. Work activities include: planning and carrying out experiments and observations on human beings and animals; investigating problems regarding individual development, human inter-relationships, and the processes of learning and teaching; conducting research, and developing psychological principles and techniques; developing methods for use in psychological research, and developing testing material and establishing norms; investigating methods of programming psychological information for electronic-data processing; diagnosing mental disorders of individuals and the needs of children in educational systems; providing individual and group guidance and counselling services, and carrying out corrective programs; applying psychological principles and techniques to personnel management, marketing, and industrial design; and administering psychological tests and interpreting results.

APTITUDES AND CAPACITIES: Psychologists require: ability to learn, understand and apply the basic theories, principles and methods of the field of psychology, and make judgments necessary in collecting, interpreting and applying scientific data; verbal ability to understand scientific material and ideas, to communicate ideas clearly, and to interact effectively with people at all levels; numerical ability to make statistical computations quickly and accurately; clerical perceptions to recognize pertinent details in written or tabular material, such as scientific literature, research results and psychological testing data, and to avoid errors in statistical computations.

TRAINING AND ENTRY REQUIREMENTS: Psychologists normally require: a master's or doctoral degree in psychology, depending on the province; in most provinces and territories, a certificate of registration in order to engage in private practice, or use the title "psychologist"; and in provinces without a registration program, membership in the national or a provincial association for identification as a psychologist.

ADVANCEMENT POSSIBILITIES: Advancement may be from a position as a member of a group of psychologists working together in an establishment to a position of increased remuneration and administrative responsibility as group leader, chief, or director of a program in government, private industry or education.

TRANSFER POSSIBILITIES: Psychologists may be engaged in applied psychology or in academic or research activities, either in private practice or in a university, school, hospital governmental, industrial or commerical setting. Transfer possibilities, however, are normally limited to positions within the same field of specialization.

OCCUPATIONAL TITLES:

2315-110	PSYCHOLOGIST, GENERAL
2315-114	PSYCHOLOGIST, EXPERIMENTAL
2315-118	PSYCHOLOGIST, DEVELOPMENTAL
2315-122	PSYCHOLOGIST, EDUCATIONAL
2315-126	PSYCHOLOGIST, ENGINEERING
2315-130	PSYCHOLOGIST, SOCIAL
2315-134	PSYCHOLOGIST, CLINICAL
2315-138	PSYCHOLOGIST, COUNSELLING
2315-142	PSYCHOLOGIST, INDUSTRIAL
2315-146	PSYCHOLOGIST, SCHOOL
2315-150	PSYCHOMETRIST

QUALIFICATIONS PROFILE:

APR:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	1	4	4	3	4	4	4	5	4	S567	I	6-5	8-7	6874	05947
			2	3													

2331 - SOCIAL WORKERS

108, 118

WORK PERFORMED: This chapter includes occupations concerned with diagnosing and treating social problems that affect individuals and communities, using a knowledge of human behaviour and of available community resources. Worker functions include: determining appropriate courses of action to be taken on the basis of analyses of case studies; counselling or guiding individuals or families to resolve their personal or social problems; negotiating with other community agencies and groups concerned with social problems to arrive jointly at decisions, conclusions, or solutions. Work activities include: interviewing clients to determine and evaluate the nature, extent and causes of the problem; referring clients to community agencies and other organizations if required, and arranging for provision of appropriate assistance; following clients' progress; compiling case records; and preparing reports.

APTITUDES AND CAPACITIES: Social Workers require: intellectual capacity to make judgments based on an understanding of human nature and analyses of social problems, to interpret and apply existing welfare services according to the needs of the client, and to acquire a knowledge of, and apply the techniques of rehabilitation; verbal ability to communicate effectively with people at all levels, both in a counselling situation and in contacts with fellow social workers or community members; clerical perception to note pertinent detail in case records, to maintain case files, and to prepare budgets and reports.

TRAINING AND ENTRY REQUIREMENTS: Social Workers generally require: a bachelor of arts degree with such courses as sociology, psychology, political science, and economics; and two years of graduate study at a school of social work leading to a master's degree in social work; OR a bachelor's degree in social work; and a one-year graduate study program at a school of social work leading to a master's degree in social work.

ADVANCEMENT POSSIBILITIES: Social Workers may teach in university schools of social work or provide consultative, advisory, or administrative services to governmental bodies or private agencies. They may be on the staff of juvenile or family courts, schools, hospitals, clinics or other helping institutions. Advancement to senior supervisory or administrative positions is based on additional academic qualifications, experience and demonstrated ability.

TRANSFER POSSIBILITIES: Social Workers may teach in university schools of social work or provide consultative, advisory, or administrative services to governmental bodies or private agencies. They may be on the staff of juvenile or family courts, schools, hospitals, clinics or other helping institutions. Transfer may take place from one agency to another, or from governmental to private agencies.

OCCUPATIONAL TITLES:

2331-110	SOCIAL-SERVICES SUPERVISOR	2331-122	PROBATION OFFICER
2331-114	COMMUNITY-ORGANIZATION WORKER	2331-126	SOCIAL WORKER, CASE WORK
2331-118	PAROLE OFFICER	2331-130	SOCIAL WORKER, GROUP

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	3	4	4	3	4	4	4	5	5	S56	I	5	8-7	462	5974
	2	2				2											

2333A-A OCCUPATIONS IN COMMUNITY RECREATIONAL SERVICES

WORK PERFORMED: This chapter includes occupations concerned with organizing and supervising social, recreational and cultural activities such as those in camps, community centres and playgrounds. Worker functions include: examining and evaluating data relevant to community resources and requirements; determining action to be taken on the basis of analyses of data; training staff, instructing participants in recreational programs such as in arts and crafts, sports or games; and supervising paid or volunteer workers. Work activities include: studying recreational needs of a community, and planning, organizing and conducting recreational activities to meet these needs; and performing administrative duties necessary for the operation of recreational centres, playgrounds or camps.

APTITUDES AND CAPACITIES: learning ability to understand the social and recreational needs of the community and the role of community services in fulfilling these needs; verbal ability to communicate effectively with staff and volunteer members; numerical ability to analyze welfare and community needs and resources, to ascertain and evaluate financial implications, and prepare budgets.

TRAINING AND ENTRY REQUIREMENTS: a bachelor's degree in recreation, recreational administration or a social science; and several years of experience in the field of recreation.

ADVANCEMENT POSSIBILITIES: Persons in the field of recreation may advance ultimately to positions as Recreation Directors in charge of the administration of a total community, city or area program, or of a large organization or agency provided they have obtained the necessary qualifications.

TRANSFER POSSIBILITIES: Transfer may take place between positions having similar requirements in federal, provincial or municipal government, or private organizations, such as industrial establishments, voluntary agencies, recreation centres, penal institutions, children's homes, hospitals, playgrounds, recreation enterprises and educational institutions.

OCCUPATIONAL TITLES:

2333-110	RECREATION DIRECTOR	2333-114	CAMP DIRECTOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	4	4	4	4	4	4	5	5	S56	I	5-4	7	462	4591
	3	3															

2333B - SOCIAL-SERVICES ASSISTANTS

WORK PERFORMED: This chapter includes occupations concerned with assisting professional social workers in providing social services to individuals and family groups. Work functions include: compiling information to prepare case records for the use of the social worker; and speaking to clients to provide information. Work activities include: answering routine inquiries, maintaining case files, accompanying clients to homes, courts, clinics or elsewhere; and performing related duties.

APTITUDES AND CAPACITIES: Social-Services Assistants require: learning ability to understand the nature and extent of services provided by professional case workers, and to carry out established procedures; verbal ability to communicate effectively with clients and professional case workers; clerical perception to prepare correspondence or reports, and to maintain case files.

TRAINING AND ENTRY REQUIREMENTS: Social-Services Assistants require: a two-year certificate course in social services at a community college.

ADVANCEMENT POSSIBILITIES: Advancement possibilities are limited unless further education and training are acquired.

TRANSFER POSSIBILITIES: Transfer opportunities exist to child-care centres, correctional or rehabilitative services, institutes for the mentally or physically handicapped, welfare departments, and community development organizations.

OCCUPATIONAL TITLES

2333-118 SOCIAL-SERVICES ASSISTANT

QUALIFICATONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	4	4	4	5	5	S56	I	4	6	46	51

2341 - JUDGES AND MAGISTRATES

WORK PERFORMED: This chapter includes occupations concerned with presiding over judicial proceedings and prounouncing judgments in courts of law. Work functions include: analyzing and evaluating evidence to render decisions according to law; counselling individuals on their legal rights, and juries on the law applicable to the case being heard; and co-ordinating time, place and sequence of events to be followed. Worker activities include: ruling on the conduct of cases in court; admitting or rejecting evidence presented; determining rights and obligations of parties involved in litigation; and passing sentence in accordance with the law.

APTITUDES AND CAPACITIES: Judges and Magistrates require: learning ability to thoroughly understand and apply the principles of civil, criminal, admiralty, corporation and other law, and capacity to reason analytically when relating knowledge to legal problems; verbal ability to understand and use legal terminology, and to communicate effectively with people at all levels; clerical perception to examine and prepare legal documents; ability to hear, especially in a court room which may be subject to distracting noise, poor acoustics and intermittent interruptions.

TRAINING AND ENTRY REQUIREMENTS: Judges require: a bachelor's degree in law; from six to twelve months of articleship with an established lawyer; successful completion of bar admission examinations; and approximately ten years of experience as a practising lawyer. The appointment of Judges is the exclusive right of the Governor-General in Council, under the terms of the British North American Act, for the Supreme Court of Canada, the Exchequer Court and other Miscellaneous Courts under Federal jurisdiction as well as Provincial Superior, District and County Courts. Magistrates require: over ten years of experience as a responsible member of the business community, or activities in social and welfare agencies, religious, civic, community or other affairs. The appointment of Magistrates - now referred to in some provinces as Provincial Judges - is the exclusive right of the Lieutenant-Governor in Council under the terms of the British North America Act, and they have limited jurisdiction as set out in the various governing statutes of the Provinces.

ADVANCEMENT POSSIBILITIES: Judges and Magistrates may be appointed to Higher Courts if so recommended by the competent authority under the terms of the British North America Act.

TRANSFER POSSIBILITIES: There are no transfers to other occupations as judges and magistrates are appointed for life, or until they reach the statutory retirement age. Judges may resign from the bench but before they resume the practise of law they must meet certain restrictions imposed upon them by legislation.

OCCUPATIONAL TITLES:

2341-110 JUDGE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	3	4	3	3	4	4	4	5	5	S56	I	6	9	465	59X04

2343-A LAWYERS AND NOTARIES 108, 118

WORK PERFORMED: This chapter includes occupations concerned with pleading cases or conducting prosecutions in courts of law, providing advice on legal rights and obligations, and drawing up and certifying legal documents. Worker functions include: co-ordinating, analyzing and compiling information for the defence or prosecution case in a trial or hearing, or the preparation of legal documents; counselling individuals or groups concerning their rights, obligations or other legal matters; pleading or prosecuting cases in court; and negotiating contracts, purchase and sale of property and arrangement of mortgage loans. Work activities include: examining circumstances and determining applicable law by studying codes, statutes, previous decisions and established regulations; representing clients in non-contentious proceedings; drawing up mortgages, deeds, wills and other legal papers; arranging probates and administering estates of deceased persons; and taking affidavits and administering oaths.

APTITUDES AND CAPACITIES: learning ability to understand and apply the principles of law, and capacity to reason analytically when relating knowledge to legal problems; verbal ability to understand and use legal and technical terminology, and to communicate persuasively and effectively with clients, members of a court and others of various social, cultural and educational backgrounds; clerical perception to review pertinent details and to avoid errors in legal documents.

TRAINING AND ENTRY REQUIREMENTS: Lawyers require a bachelor's degree in law; six to eighteen months as an articled clerk or student-at-law to an established lawyer; and membership in a provincial Bar Association obtained by passing examinations set by the association. Notaries, Quebec require a degree in law, common law section, from a recognized university, including notarial practice; and pass examinationssas determined by the Board of Notaries of the Province of Quebec leading to registration as a member.

ADVANCEMENT POSSIBILITIES: Workers may advance to senior positions in government departments or in the private sector. Some may become partners in law firms or establish their own practice. With appropriate qualifications, some may be appointed judges or magistrates.

TRANSFER POSSIBILITIES: Workers may transfer to positions in government, commerce or industry requiring a legal background.

OCCUPATIONAL TITLES:

2343-110 LAWYER

2343 NOTARY, QUEBEC

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	3	4	4	3	4	4	4	5	5	S567	I	6	8	685	945701

2351 - LIBRARIANS AND ARCHIVISTS 167, 267, 387

WORK PERFORMED: This chapter includes occupations concerned with organizing, developing and maintaining sytematic collections of books, audio-visual material, historically valuable documents and other recorded material, and making them available to users. Worker functions include: co-ordinating library services, and appraising and classifying library and archival material. Work activities include: acquiring, cataloguing, indexing, issuing, receiving and accounting for library and archival material; and assisting clientele in using library facilities.
APTITUDES AND CAPACITIES: Librarians and Archivists require: learning ability to plan, develop and execute library, archival and related services and computer-oriented data storage and retrieval systems, and to understand and apply library classification systems; verbal ability to confer with people at all levels of education and training, to analyze publishers' catalogues, to compile information and prepare written summaries, and to understand patrons' questions, communicate clearly and aid them with information for their research programs; form perception, as applicable to archivists, to notice pertinent detail in pictures, maps and other objects, to make visual discriminations and observe slight differences in quality, texture, shadings and other characteristics to determine value and authenticity; clerical perception to consult references and identify subject matter, to verify information and record data, and to maintain collections, files, catalogues and indices; capability to perform sedentary to light work with considerable reading and stooping for material on shelves as well as handling and fingering books, index cards. files, audio-visual and other material; near acuity required when checking detail, recording information, and filing material.
TRAINING AND ENTRY REQUIREMENTS: Librarians normally require: a three or four year course of studies in a university leading to a bachelor of arts degree or other acceptable degree; and one or two years program in a university school of library science leading to a bachelor's or master's degree - B.L.S. or M.L.S. Archivists normally require: a bachelor's degree in Honours History, but most employers perfer a master's degree; and a one-year period of on-the-job training. The Canadian Historical Society sponsors summer courses in archival administration of approximately one month's duration, and awards a certificate upon completion of this course.
ADVANCEMENT POSSIBILITIES: Advancement may be to that of 2350-118 SUPERVISING LIBRARIAN, TECHNICAL SERVICES or to 1132-114 DIRECTOR, LIBRARY. In libraries where a grading system is in effect, advancement may be from lower to higher grades.
TRANSFER POSSIBILITIES: Transfers are usually between occupations in this group or between libraries or archives. For example, a bibliographer may transfer to a cataloguer, or a librarian to a special librarian, or reference librarian. Libraries vary according to type; some are general in nature while others are specialized according to the needs of an establishment; therefore, transfer of workers between libraries is common. Because of their general knowledge and familiarity with a wide variety of topics, transfers to writing or teaching occupations are also possible, provided that certification is acquired. Archivists, sometimes referred to as Historical Records Officers, may be classified according to levels within their occupation, and thus can advance within these levels to supervisory positions.

OCCUPATIONAL TITLES:

2351-110	REFERENCE LIBRARIAN	2351-122	BIBLIOGRAPHER
2351-114	LIBRARIAN	2351-126	CATALOGUER
2351-118	SPECIAL LIBRARIAN	2351-146	ARCHIVIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	3	4	2	3	4	4	5	4	S-L4567	I	6-5	7	162	09541
				4	2												

2353 -A TECHNICIANS IN LIBRARY, MUSEUM AND ARCHIVAL SCIENCES

WORK PERFORMED: This chapter includes occupations concerned with restoring paintings, documents, artificats and equipment, taxidermy, and assisting in maintaining a collection of library material. Worker functions include: working skilfully with precision to restore items as close as possible to their original state; analyzing data obtained by detailed examination of paintings, documents, artifacts, fossils and machines to determine restoration techniques to be employed; compiling information on specimens, documents and books to assist in developing, organizing and maintaining records and catalogues; giving assignments and directions to assistants in classifying and cataloguing collections. Work activities include: determining age and nature of paintings and documents; removing accretions and stains from paintings and documents using various techniques; remounting paintings and restoring damaged sections; preparing and mounting animal specimens for display purposes; constructing skeletal mounts and repairing damaged artifacts; dismantling, restoring, replacing and reassembling machine parts on antique machinery and equipment; arranging paintings, documents, specimens and artifacts for cataloguing; and maintaining collections of library material.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply scientific or technical principles and methods for the restoration or preservation of items such as documents, artifacts, paintings, or a variety of display equipment, depending upon the occupation; spatial perception to visualize how skeletal or mechanical parts fit together and how finished product will look; form perception to detect pertinent detail, such as disfiguration or other flaws in paintings, or wear and corrosion to artifacts or equipment parts; eye-hand-finger co-ordination and finger dexterity when repairing paintings, artifacts or equipment, using oils, paints and brushes, or when fitting objects together using hand tools; colour discrimination to combine paints and oils to develop colours which accurately match the original painting, or to detect discolouration caused by aging; ability to stoop, kneel or crouch when placing artifacts, paintings and art objects on exhibit; near visual acuity and depth perception to restore paintings and other artifacts; capacity to adapt to conditions where there are possible mechanical hazards from equipment, or from odours, fumes, dust, liquids and poor ventilation; capacity to work in presence of noise from machinery in the case of 2353-126 EQUIPMENT RESTORER.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter require: completion of a two or three-year program in a community college or an institute of technology in graphic arts, natural sciences, or interior design, depending upon the occupation; for some occupations, such as 2353-110 PAINTINGS RESTORER and 2353-118 TAXIDERMIST, up to ten years of on-the-job training and experience is required in addition to formal training in chemistry, or basic animal anatomy.

ADVANCEMENT POSSIBILITIES: Advancement for individuals with supervisory and leadership abilities and sufficient experience may be to 2350-114 CHIEF-DISPLAY OFFICER, MUSEUM or to 2350-122 TECHNICAL OFFICER, MUSEUM.

TRANSFER POSSIBILITIES: Transfers are limited due to the high degree of specialization and training required for these occupations.

OCCUPATIONAL TITLES:

2353-110	PAINTINGS RESTORER
2353-114	DOCUMENT RESTORER
2353-118	TAXIDERMIST
2353-122	ARTIFACT AND FOSSIL RESTORER
2353-126	EQUIPMENT RESTORER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3 2	3	3 4	2 3	2 3	4	3 2	2 3	3	5 4	3 4 1	L347	I567	4	8-6	90	09Y1

2353-B TECHNICIANS IN LIBRARY, MUSEUM AND ARCHIVAL SCIENCES

WORK PERFORMED: This chapter includes occupations concerned with restoring paintings, documents, artificats and equipment, taxidermy, and assisting in maintaining a collection of library material. Worker functions include: working skilfullying with precision to restore items as close as possible to their original state; analyzing data obtained by detailed examination of paintings, documents, artifacts, fossils and machines to determine restoration techniques to be employed; compiling information on specimens, documents and books to assist in developing, organizing and maintaining records and catalogues; giving assignments and directions to assistants in classifying and cataloguing collections. Work activities include: determining age and nature of paintings and documents; removing accretions and stains from paintings and documents using various techniques; remounting paintings and restoring damaged sections; preparing and mounting animal specimens for display purposes; constructing skeletal mounts and repairing damaged artifacts; dismantling, restoring, replacing and reassembling machine parts on antique machinery and equipment; arranging paintings, documents, specimens and artifacts for cataloguing; and maintaining collections of library material.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the principles and methods of cataloguing and classifying books, documents and artifacts; verbal ability to understand and use technical language associated with cataloguing and library science, and express ideas clearly in written or oral form; clerical perception to note differences in copy and avoid perceptual errors in lists when working in a library, or in a cataloguing department of a museum; near visual acuity, and the ability to distinguish colours; capacity to adapt to conditions where there are possible hazards from dusts and poor ventilation.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter require: completion of a one or two-year course in library science at a community college.

ADVANCEMENT POSSIBILITIES: Advancement for individuals with supervisory and leadership abilities and sufficient experience may be to 2350-114 CHIEF-DISPLAY OFFICER, MUSEUM or to 2350-122 TECHNICAL OFFICER, MUSEUM.

TRANSFER POSSIBILITIES: Transfers are limited due to the high degree of specialization and training required for these occupations.

OCCUPATIONAL TITLES:

2353-130 CATALOGUER, MUSEUM
2353-134 LIBRARY TECHNICAL ASSISTANT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	4	2	4	4	4	4	4	L47	I7	4	6	16	09Y1

2391 - EDUCATIONAL AND VOCATIONAL COUNSELLORS

WORK PERFORMED: This chapter includes occupations concerned with counselling individuals or groups on education, vocational and social matters to assist them in their planning and decisions regarding educational and vocational choices. Worker functions include: co-ordinating guidance programs and available resources of other community and governmental agencies to assist in meeting the developmental needs of the individual; and counselling individuals and groups regarding educational planning, vocational selection, educational programs, and in choosing and preparing for an occupation. Work activities include: conducting and interpreting results of psychological or other tests; interviewing clients, parents and other personnel, and examining documents, such as school and work records, to obtain and integrate information about a student or worker; and assisting a client by developing a plan of study or training by appraising his abilities, aptitudes, interests, personal characteristics, work experience, and vocational opportunities.

APTITUDES AND CAPACITIES: Educational and Vocational Counsellors require: learning ability to acquire knowledge and understand and apply principles and techniques involved in counselling on educational, vocational and social matters; verbal ability to communicate effectively when counselling individuals and groups, and when consulting with professional colleagues; clerical ability to conduct, score and interpret the results of intelligence, interest and aptitude tests, and to maintain records.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: a bachelor's degree in arts or education; three years of teaching experience; certification in accordance with provincial regulations which vary considerably from province to province; completion of one, two or more years of post-graduate studies or summer courses leading to a guidance specialist certificate; OR a master's degree in education or counselling; and, one to two years of teaching experience.

ADVANCEMENT POSSIBILITIES: Educational and Vocational Counsellors who exhibit leadership and supervisory potential may advance to 2391-110 GUIDANCE HEAD or to managerial, administrative or personnel positions, such as some of those included in Chapter 1174, PERSONNEL AND RELATED OFFICERS, or Chapter 113/114 under Administrators in Teaching and Related Fields, and Personnel and Industrial Relations Managment Occupations.

TRANSFER POSSIBILITIES: Transfer opportunities are normally limited to Chapter 2399, OTHER OCCUPATIONS IN SOCIAL SCIENCES AND RELATED FIELDS, N.E.C., and some occupations in Chapter 1174, PERSONNEL AND RELATED OFFICERS.

OCCUPATIONAL TITLES:

2391-110 GUIDANCE HEAD
2391-114 COUNSELLOR, GENERAL
2391-118 COUNSELLOR, EDUCATIONAL
2391-122 COUNSELLOR, VOCATIONAL

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2 1	2 1	3	4	4	3	4	4	4	5	5	S56	I	6-5	8-7	4658	594

2511 - MINISTERS OF RELIGION

WORK PERFORMED: This chapter includes occupations concerned with providing leadership, motivation, and religious training for the spiritual life of a congregation and community of a religious faith. Worker functions include: synthesizing and analyzing data to develop concepts or interpretations in the preparation of sermons, lectures and talks; and advising, counselling and guiding individual with regard to their problems. Work activities include: conducting services of public worship; administering sacraments; conducting individual and family counselling; maintaining religious traditions; supervising religious education; and performing other duties associated with the practise and exposition of a religious faith.

APTITUDES AND CAPACITIES: Ministers of Religion require: learning ability to acquire the necessary academic background and to understand and apply basic theological concepts with sound reason, judgment and understanding to situations as they are encountered in daily life; verbal ability to understand the meaning of words and ideas associated with them, to use them effectively and express them clearly in written or oral form in preparing and preaching sermons or delivering talks or lectures, and to make the sermons or talks relevant to the congregation or audience of any age group.

TRAINING AND ENTRY REQUIREMENTS: Training for the occupations of the Ministers of Religion may take one of the following forms: in some faiths, secondary-school graduation plus training in a college oriented to their requirements; in other faiths, secondary-school graduation and training in seminaries where the training embraces university undergraduate level studies, coupled with theological training from eight to twelve years leading to ordination; in the remaining faiths, a course leading to an undergraduate degree, followed by a thorough selection process, and theological training of three years leading to a degree in theology, and to ordination.

ADVANCEMENT POSSIBILITIES: In some denominations, advancement is made to higher offices on the basis of selection or election either from a fixed term or for life. Some congregations within denominations are autonomous in their own right, and a minister for this type of congregation has reached the highest office to which he can aspire in this capacity.

TRANSFER POSSIBILITIES: Ministers of Religion who have the necessary additional qualifications may transfer to areas of specialization within the religious organization or in other organizations where their qualifications could be applied, for example social service, teaching, administration.

OCCUPATION TITLES:

2511-110	MINISTER	2511-114	RABBI

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1 2	1 2	3	4	4	3	4	4	4	5	5	L	I	6-5	8-7	4658	79451

2711-B UNIVERSITY TEACHERS

WORK PERFORMED: This chapter includes occupations concerned with teaching and research activities within an area of specialization in universities and degree-granting colleges. Worker functions include: teaching one or more subjects or specializations through lectures and demonstration; analyzing and evaluating subject matter to determine course requirements; and organizing and co-ordinating curriculum and course schedules. Work activities include: preparing and delivering lectures to students; conducting seminars or laboratory sessions; compiling bibliographies of examinations and grading answer papers; assigning and marking essays; directing research programs of graduate students; conducting research in a particular field of knowledge, and publishing findings in books or professional journals; serving on faculty committees concerned with such matters as curriculum revision, academic planning and degree requirements; advising students on academic and other matters; providing professional consultative services to government, industry and private individuals; and teaching in an adult education or university extension program, by means of correspondence courses or night classes.

APTITUDES AND CAPACITIES: University Teachers require: learning ability to understand, and apply the basic principles and techniques of a particular area of study; verbal ability to understand language and terminology of text books and related reference materials, and to communicate subject matter effectively, orally and in writing; numerical ability to employ advanced mathematics and complex formulae, particularly when teaching engineering, mathematics and physical sciences; ability to perceive spatial relationships when teaching architecture, engineering or medical sciences; perceptual ability to note slight differences in visual matter when teaching architecture, engineering, and medical, life and physical sciences; clerical perception when preparing reports and bibliographies, setting and grading of examinations, and compiling and analyzing statistical research data.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter require: a three to four-year program in a university faculty of education leading to a bachelor's degree in pedagogy or a similar specialty; and two or more years of post-graduate studies leading to at least a master's degree and preferably a doctor's degree.

ADVANCEMENT POSSIBILITIES: For workers in this cluster, advancement is through the ranks of assistant professor, associate professor to full professor. Beyond this, advancement is to more administratively oriented posts, such as 2711-110 DEPARTMENT CHAIRMAN, COLLEGE OR UNIVERSITY or to 1133-110 ACADEMIC DEAN, UNIVERSITY OR COLLEGE.

TRANSFER POSSIBILITIES: Transfer is possible and is normally to research or consultation positions in industry or government.

OCCUPATIONAL TITLES:

2711-112	UNIVERSITY TEACHER, AGRICULTURE
2711-114	UNIVERSITY TEACHER, EDUCATION
2711-118	UNIVERSITY TEACHER, ENGINEERING & ARCHITECTURE
2711-122	UNIVERSITY TEACHER, HUMANITIES
2711-126	UNIVERSITY TEACHER, LAW
2711-130	UNIVERSITY TEACHER, LIFE SCIENCES
2711-134	UNIVERSITY TEACHER, MATHEMATICS
2711-138	UNIVERSITY TEACHER, MEDICAL SCIENCES
2711-142	UNIVERSITY TEACHER, PHYSICAL SCIENCES
2711-146	UNIVERSITY TEACHER, SOCIAL SCIENCES

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1 2	1	3 2 1	3 4 2	2 3 4	3	4 3	4 3	4 3	5	5 4	L56	I	6	8	6854	457901

2731 - ELEMENTARY AND KINDERGARTEN TEACHERS 224, 624

WORK PERFORMED: This chapter includes occupations concerned with teaching a variety of subjects below the secondary school level. Worker functions include: teaching subject matter through explanation, demonstration and supervised practice; operating and handling audio-visual aids and other equipment; ascertaining the learning abilities of the pupils in relation to the subject matter, and determining the method, amount, complexity and kind of instruction which will achieve maximum progress; and evaluating students' progress. Work activities include: teaching basic academic subjects, such as reading, writing, and arithmetic; developing self-expression, self-confidence and social skills; teaching songs, games, art and manipulative tasks; instilling a sense of cleanliness, obedience and co-operation in pupils; and observing children to detect signs of ill health, emotional disturbance, or learning disabilities.

APTITUDES AND CAPACITIES: Elementary and Kindergarten Teachers require: learning ability to understand and apply the basic principles and techniques used in the field of elementary education; verbal ability to effectively communicate subject matter and answer pupils' questions satisfactorily; numerical ability to teach arithmetic and to compute grades for evaluating pupils' progress; clerical perception in keeping records of pupils' attendance, test results and progress.

TRAINING AND ENTRY REQUIRMENTS: Workers in this chapter normally require: one or more years of university studies; or from one to three years of training at a teachers' college, depending on provincial requirements for certification; For higher levels of certification, additional periods of study leading to a bachelor's degree in education are required together with an additional number of years of teaching experience. Pre-school Teachers normally require: a two-year program in a community college; or a four-year university program in early childhood education; or several years of experience supplemented by part-time studies.

ADVANCEMENT POSSIBILITIES: Teachers may advance to positions with more administrative responsibility, or to 1133-142 PRINCIPAL if they possess the necessary qualifications.

TRANSFER POSSIBILITIES: Transfer may be to certain occupations in Chapter 2795, TEACHERS OF EXCEPTIONAL STUDENTS, N.E.C.

OCCUPATIONAL TITLES:

2731-110 ELEMENTARY-SCHOOL TEACHER
2731-114 KINDERGARTEN TEACHER
2731-118 PRE-SCHOOL TEACHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2 3	2 3	3 4	4	4	3 4	4	4	4	5	4	L456	B	5-4	6	645	4590

2733-A SECONDARY-SCHOOL TEACHERS

WORK PERFORMED: This chapter includes occupations concerned with teaching academic or vocational subjects in secondary schools. Worker functions include: teaching subject material through explanation, demonstration and supervised practice; operating laboratory apparatus, shop tools, audiovisual aids or other equipment; examining and evaluating required subject matter and students' progress. Work activities include: preparing and presenting lesson materials; assigning lessons and correcting work assignments; preparing, administering and marking tests and recording results; maintaining discipline in classrooms and in other school areas; participating in staff meetings, educational conferences and teacher-training workshops; sponsoring special activities in student organizations; assisting students in selecting courses of study; and advising them on academic and other problems.

APTITUDES AND CAPACITIES: Secondary-School Teachers require: ability to learn, understand and apply the basic principles and techniques used in the field of education, and to acquire the necessary background in the subject matter area; verbal ability to understand the language of text books and related subject material; and to communicate subject matter and answer questions effectively; numerical ability to understand and apply mathematical concepts when teaching mathematics and science subjects, and when computing grades for evaluating students' progress; clerical perception to keep records of attendance, test results and students' progress.

TRAINING AND ENTRY REQUIREMENTS: Secondary-School Teachers, Academic, depending on the province, normally require: completion of a three or four-year university program, including courses in pedagogy and subject matter to be taught in schools, leading to a Bachelor of Education degree; OR a three-year university program leading to a Bachelor of Arts or Science degree; and one year of teacher training in a unversity of education. On completion of either of the above programs, a letter of standing and a certificate is granted by the provincial Department of Education. Usually the certificate is valid for from one to four years and may be made permanent after two years of satisfactory teaching experience. In some provinces, however, the permanent certificate is granted on completion of the university program.

ADVANCEMENT POSSIBILITIES: Advancement for teachers of academic or vocational subjects may be to department head positions or 1133-142 PRINCIPAL.

TRANSFER POSSIBILITIES: Transfers for Secondary-School Teachers may be 2799-118, INSTRUCTOR, CORRESPONDENCE SCHOOL, or to occupations requiring similar qualifications in Chapter 2791, COMMUNITY COLLEGE AND VOCATIONAL SCHOOL TEACHERS.

OCCUPATIONAL TITLES:

2733-110 SECONDARY-SCHOOL TEACHER, ACADEMIC

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3 2	4	3	3	4	4	4	5	4	L456	I	5	7	654	4590

2733-B SECONDARY-SCHOOL TEACHERS

WORK PERFORMED: This chapter includes occupations concerned with teaching academic or vocational subjects in secondary schools. Worker functions include: teaching subject material through explanation, demonstration and supervised practice; operating laboratory apparatus, shop tools, audiovisual aids or other equipment; examining and evaluating required subject matter and students' progress. Work activities include: preparing and presenting lesson materials; assigning lessons and correcting work assignments; preparing, administering and marking tests and recording results; maintaining discipline in classrooms and in other school areas; participating in staff meetings, educational conferences and teacher-training workshops; sponsoring special activities in student organizations; assisting students in selecting courses of study; and advising them on academic and other problems.

APTITUDES AND CAPACITIES: Secondary-School Teachers require: ability to learn, understand and apply the basic principles and techniques used in the field of education, and to acquire the necessary background in the subject matter area; verbal ability to understand the language of text books and related subject material; and to communicate subject matter and answer questions effectively; numerical ability to understand and apply mathematical concepts when teaching mathematics and science subjects, and when computing grades for evaluating students' progress; clerical perception to keep records of attendance, test results and students' progress.

TRAINING AND ENTRY REQUIREMENTS: Secondary-School Teachers, Vocational, depending on the province, normally require: completion of a three to five year apprenticeship program or equivalent training in a trade technology or applied arts; and, from two to five years of experience in employment; OR a three or four-year university program leading to a degree in a field of specialization, such as home economics, applied science or commerce; or a two or three-year program at a college of technology or applied arts; and one year of teacher training in a university faculty of education. On completion of one of the above programs, a letter of standing and a certificate endorsed as to the specialization in business, industry or arts, is granted by the provincial Department of Education. Usually the certificate is valid for from one to four years and may be made permanent after two years of satisfactory teaching experience.

ADVANCEMENT POSSIBILITIES: Advancement for teachers of academic or vocational subjects may be to department head positions or 1133-142 PRINCIPAL.

TRANSFER POSSIBILITIES: Transfers for Secondary-School Teachers may be 2799-118, INSTRUCTOR, CORRESPONDENCE SCHOOL, or to occupations requiring similar qualifications in Chapter 2791, COMMUNITY COLLEGE AND VOCATIONAL SCHOOL TEACHERS.

OCCUPATIONAL TITLES:

2733-114 SECONDARY-SCHOOL TEACHER, VOCATIONAL

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3 2	3	3	3	3	3	3	5	4	L456	I	4	8	6549	4590

2791 -A COMMUNITY COLLEGE AND VOCATIONAL SCHOOL TEACHERS

WORK PERFORMED: This chapter includes occupations concerned with teaching vocational and academic subjects in vocational institutes, community colleges or private vocational schools. Worker functions include: instructing students through lectures, demonstrations, seminars, discussions and other means; and examining and evaluating required subject matter and students' progress. Work activities include: preparing teaching outlines for courses of study; advising students on school curricula; preparing, administering and marking tests; participating in faculty committee activities; keeping abreast of new developments in teaching specialties by attending conferences and by reading pertinent and current literature; and participating in school extension programs.

APTITUDES AND CAPACITIES: Community College and Vocational School Teachers normally require: learning ability to understand and apply the basic principles and methods used in the field of education and to acquire necessary background in subject matter area; verbal ability to comprehend the literature and lecture material related to a particular teaching specialty and to communicate effectively with students, faculty and public; numerical ability for teaching mathematics and science subjects; clerical perception to accurately record data, or to instruct students in use of various accounting forms and registers.

TRAINING AND ENTRY REQUIREMENTS: Teachers in this chapter normally require: a three to four year university course of studies leading to a bachelor's degree; or for 2791-118 VOCATIONAL, TEACHER, BUSINESS SUBJECTS; minimum of secondary-school graduation plus at least a one-year course of studies in a business college or vocational institute, and several years of practical business experience.

ADVANCEMENT POSSIBILITIES: Teachers who have supervisory potential and the required qualifications may advance to department head positions and to 1133-142 PRINCIPAL of a community college or vocational school, or to that of dean or president. Advancement is usually based on administrative ability, success as a teacher, educational background including teacher training, and the nature and quality of business or industrial experience.

TRANSFER POSSIBILITIES: Transfers may be, for example, to 2799-118 INSTRUCTOR, CORRESPONDENCE SCHOOL, or to some occupations requiring similar qualifications in Chapter 2733, SECONDARY-SCHOOL TEACHERS.

OCCUATIONAL TITLES:

2791-110	ACADEMIC TEACHER, VOCATIONAL INSTITUTE
2791-114	VOCATIONAL TEACHER, APPLIED ARTS SUBJECTS
2791-118	VOCATIONAL TEACHER, BUSINESS SUBJECTS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	4	3	3	4	4	4	5	5	L456	I	5	7	654	45790
			2			2											

2791-B COMMUNITY COLLEGE AND VOCATIONAL SCHOOL TEACHERS

WORK PERFORMED: This chapter includes occupations concerned with teaching vocational and academic subjects in vocational institutes, community colleges or private vocational schools. Worker functions include: instructing students through lectures, demonstrations, seminars, discussions and other means; and examining and evaluating required subject matter and students' progress. Work activities include: preparing teaching outlines for courses of study; advising students on school curricula; preparing, administering and marking tests; participating in faculty committee activities; keeping abreast of new developments in teaching specialties by attending conferences and by reading pertinent and current literature; and participating in school extension programs.

APTITUDES AND CAPACITIES: Community College and Vocational School Teachers normally require: learning ability to understand and apply the basic principles and methods used in the field of education and to acquire necessary background in subject matter area; verbal ability to comprehend the literature and lecture material related to a particular teaching specialty and to communicate effectively with students, faculty and public; numerical ability for teaching mathematics and science subjects; clerical perception to accurately record data, or to instruct students in use of various accounting forms and registers; spatial perception to visualize three-dimensional objects represented by diagrams, blueprints and drawings, and to perceive relative paths, positions, or functions of stationary or moving parts.

TRAINING AND ENTRY REQUIREMENTS: Teachers in this chapter normally require: depending on the subject, the school system and current demand situation, from one to three years of post-secondary education in an institute of technology or college of applied arts and technology, to a master's degree; and for some subjects, several years of industrial experience. For some public-supported schools in some provinces, a teacher's certificate is required for occupations in both clusters. Vocational Teachers of apprenticeable trades, such as draughting or welding, are usually required to provide proof of having completed an apprenticeship program which normally extends over a period of from two to four years.

ADVANCEMENT POSSIBILITIES: Teachers who have supervisory potential and the required qualifications may advance to department head positions and to 1133-142 PRINCIPAL of a community college or vocational school, or to that of dean or president. Advancement is usually based on administrative ability, success as a teacher, educational background including teacher training, and the nature and quality of business or industrial experience.

TRANSFER POSSIBILITIES: Transfers may be, for example, to 2799-118 INSTRUCTOR, CORRESPONDENCE SCHOOL, or to some occupations requiring similar qualifications in Chapter 2733, SECONDARY-SCHOOL TEACHERS.

OCCUPATIONAL TITLES:

2791-122	VOCATIONAL TEACHER, TECHNOLOGICAL SUBJECTS
2791-126	VOCATIONAL TEACHER, TECHNICAL SUBJECTS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	3 2	3	3	3	3	3	4	4	L456	I	5	7	6547	45790

2792 - FINE ARTS TEACHERS 028, 221, 228

WORK PERFORMED: This chapter includes occupations concerned with teaching or instructing students in the arts of singing, music, painting, ceramics, sculpture, drama and dancing, in public or private schools. Worker functions include: instructing students in the history, theory or practice of fine art subjects; synthesizing lesson subject matter; analyzing students' capabilities and training needs; and precision in the utilization of artistic materials and in the application of teaching techniques and methods. Work activities include: planning programs of studies according to interest or ability of students; evaluating students' qualifications and progress, preparing and assigning special exercises and grading students's work; delivering lectures and demonstrating the use and selection of materials, utilizing various teaching aids; and ordering supplies.

APTITUDES AND CAPACITIES: Fine Arts Teachers normally require: learning ability to understand the theory and history of an art, such as painting, dancing or music; verbal ability to effectively present lesson subject matter and to discuss students' progress with them; spatial perception to demonstrate dance movements and steps in accordance with aesthetic principles, and in choosing dimensional objects for art lessons; form perception to critically assess students' work for 2792-118 TEACHER, ART; clerical perception to record and present information relative to students' attendance and progress, and to maintain records of equipment; eye-hand-finger co-ordination for 2792-114 MUSIC TEACHER, INSTRUMENTAL to demonstrate hand, wrist and finger movements required to play musical instruments; finger dexterity for 2792-118 TEACHER, ART to manipulate materials when demonstrating techniques; eye-hand-foot co-ordination for 2792-126, TEACHER, DANCING to demonstrate body, hand and foot movement to musical accompaniment; colour discrimination for 2792-118 TEACHER, ART to identify various colours and shades of colour, and colour combinations, and to combine paints and oils to develop colours and colour shades for particular applications; agility for activities involving maintaining balance and equilibrium and stooping and reaching to demonstrate dance movements for 2792-126 TEACHER, DANCING; capacity for activities involving handling and fingering for 2792-114, MUSIC TEACHER, INSTRUMENTAL to demonstrate holding and positioning of musical instruments, and for 2792-118 TEACHER, ART when working with materials or tools, such as clay, palette or knife; hearing for 2792-114 MUSIC TEACHER, INSTRUMENTAL to assess performances of students of music; visual acuity, depth perception and normal colour vision to assess performances of students of music; visual acuity, depth perception and normal colour vision to assess finger movement of student of violin, to assess group dancing presentations and to identify colours and shades of colours when teaching painting.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: two, three or four years of studies in a university college of art or conservatory of music, depending on the specialty, perferably leading to a bachelor's degree; completion of educational and experience requirements leading to teacher certification in accordance with provincial regulations; for 2792-126 TEACHER, DANCING, a number of years training under a qualified teacher of ballroom, tape or other recognized form of dancing.

ADVANCEMENT POSSIBILITIES: Teachers who are academically qualified, have leadership potential and other desirable attributes may advance to department head status, or assume duties of a consultant or specialist on a regional school board. Teachers may advance by establishing their own schools or studios.

TRANSFER POSSIBILITIES: Fine Arts Teachers may transfer to related occupations in Minor Groups 331, OCCUPATIONS IN FINE AND COMMERCIAL ART, PHOTOGRAPH AND RELATED FIELDS, and 333, OCCUPATIONS IN PERFORMING AND AUDIOVISUAL ARTS.

OCCUPATIONAL TITLES:

2792-110 MUSIC TEACHER, VOCAL
2792-114 MUSIC TEACHER, INSTRUMENTAL
2792-118 TEACHER, ART
2792-122 TEACHER, DRAMATIC ART
2792-126 TEACHER, DANCING

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	2	3	3	3	4	3	5	5	L234567	I	5-4	8-7	568	459X
		3	4	3	2	4	4	2	4	4	4						
				4			2	3		1	1						

2797A - FLYING INSTRUCTORS

123, 223

WORK PERFORMED: This chapter includes occupations concerned with instructing student pilots and giving refresher courses to experienced pilots and flying instructors in flight procedures and techniques, aviation regulations, meteorology and navigation. Worker functions include: instructing student pilots in theoretical principles and basic techniques of flying fixed-wing aircraft, helicopters, gyroplanes and gliders; conducting familiarization programs for experienced pilots in the techniques of operating new aircraft; piloting aircraft to demonstrate the proper methods of controlling aircraft in flight; analyzing data related to, and assessing performance of, pilots to prepare comprehensive reports and recommendations; and co-ordinating instruction and test programs. Work activities include: assessing proficiency of pilots and instructors in flying specific types of aircraft; and accompanying student on training flights and demonstrating techniques for effective control of aircraft.

APTITUDES AND CAPACITIES: Flying Instructors require: learning ability to understand the theory of flight and its application to fixed or rotary winged aircraft, to understand instructions and carry out orders correctly, and reasoning ability to assess the needs and progress of those being instructed; verbal ability to understand technical language associated with aircraft and to exchange ideas comprehensibly and effectively; numerical ability to use mathematics applicable to aeronautical navigation, and to make calculations accurately; spatical perception to visualize position and path of an aircraft and its relation to surroundings, to judge distances accurately, and to visualize details of the ground from maps and other navigational aids; form perception to perceive pertinent detail on graphic material, such as maps and charts; eye-hand-finger co-ordination to move throttles, levers and other controls rapidly and accurately; eye-hand-foot co-ordination to make movements with hands and feet in response to visual stimuli, when using feet to control rudders and hands to adjust stick, throttle and other controls; capacity to express ideas clearly by means of the spoken word when transmitting information over radio transmitters; capacity to hear radio communications concerning landing and taking-off instructions and inter-communication in the aircraft, while subject to distracting noises, such as radio inter-communication and engine noises; visual acuity, both near and far, depth perception, good field of vision, and good colour perception.

TRAINING AND ENTRY REQUIREMENTS: Flying Instructors normally require: a valid Commercial or Airline Pilot license; proof of specified number of hours of flight experience; and complete written examinations and flight tests set by the federal Department of Transport. Helicopter and Gyroplane Instructors require similar qualifications as set out above, except that flight experience on helicopters or gyroplanes is required.

ADVANCEMENT POSSIBILITIES: Flying Instructors may advance to more senior flying instructor classes by acquiring the necessary flight time and passing examinations set by the federal Department of Transport.

TRANSFER POSSIBILITIES: Flying Instructors may transfer to other flying duties as described under Chapter 9111, AIR PILOTS, NAVIGATORS AND FLIGHT ENGINEERS, such as 9111-110 TEST PILOT or 9111-122 EXECUTIVE PILOT.

OCCUPATIONAL TITLES:

2797-110	CHIEF-FLYING INSTRUCTOR
2797-118	INSTRUCTOR, AIRLINE PILOT
2797-122	FLYING INSTRUCTOR
2797-126	FLYING INSTRUCTOR, HELICOPTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{2}$	$\underline{2}$	$\underline{2}$	$\underline{2}$	$\underline{2}$	3	$\underline{2}$	3	3	$\underline{3}$	4	L4567	B	5	8-7	659	59Y08

3111 - PHYSICIANS AND SURGEONS

101, 104, 108, 161

WORK PERFORMED: This chapter includes occupations concerned with diagnosing, treating and preventing illnesses in humans. Work functions include: analyzing data obtained from examination, laboratory tests and other diagnostic aids to determine the nature and extent of disorders; determining the kind and sequence of treatment required; using with extreme precision, surgical and medical instruments and laboratory equipment; and advising and counselling patients on prescribed treatments and health care. Work activities include: conducting medical examinations; prescribing drugs or other remedial treatments; performing surgery; administering treatments using special techniques and equipment; and acting as consultant to other physicians.

APTITUDES AND CAPACITIES: Physicians and Surgeons require: intellectual ability to acquire a knowledge of the medical sciences, analytical ability to derive the nature, origin and probable course of illness or disorder from diagnostic and historical information, and the judgment to apply this knowledge to the treatment of patients; verbal ability to learn and use medical terminology and to communicate effectively with people at all levels; spatial perception to visualize position and arrangement of unseen organs, bone structure and body-tissue from X-ray photographs, thermography, and knowledge of anatomy; form perception to see details in body structure and to observe physical indications of disease or damage in body organs or body tissue; finger dexterity for administering injections and performing surgery; manual dexterity and eye-hand-finger co-ordination to use surgical instruments and apparatus with precision and speed.

TRAINING AND ENTRY REQUIREMENTS: Physicians and Surgeons normally require: two or more years in an approved university Faculty of Arts and Sciences; four years of study in the medical faculty of a university to acquire the M.D. degree; one year of internship of an approved hospital, which may also be considered as the fifth year of medical study; the right to practice medicine, accorded by license and awarded by the appropriate Provincial Medical Council of the College of Physicians and Surgeons. To obtain specialist qualifications an additional three to five years of advanced study and training in an approved hospital is necessary. Official recognition is obtained by writing the examinations of the Royal College of Physicians and Surgeons, or the provincial medical authority regulating medical specialties.

ADVANCEMENT POSSIBILITIES: Most physicians and surgeons are self-employed, therefore advancement possibilities are usually a matter of personal choice when deciding to enter private practice, medical research or administration.

TRANSFER POSSIBILITIES: Similarly, transfer is a matter of personal choice and may be to, for example, teaching or administration.

OCCUPATIONAL TITLES:

3111-110	CARDIOLOGIST
3111-114	DERMATOLOGIST
3111-118	INTERNIST
3111-122	NEUROLOGIST
3111-126	OBSTETRICIAN-GYNAECOLOGIST
3111-130	OPHTHALMOLOGIST
3111-134	OTOLARYNGOLOGIST
3111-138	PHYSIATRIST
3111-142	RADIOLOGIST
3111-146	SURGEON, GENERAL
3111-150	UROLOGIST
3111-154	ANAESTHETIST
3111-158	PAEDIATRICIAN
3111-162	PSYCHIATRIST
3111-166	PHYSICIAN, GENERAL PRACTICE
3111-170	PHYSICIAN, OCCUPATIONAL HEALTH
3111-174	MEDICAL OFFICER, CIVIL AVIATION

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	1	1	2	1	2	3	2	2	2	5	3
				2	1	2	3	1	1	4	4
							1				

PA	EC	GED	SVP	INTS.	TEMPS.
L4567	I	6	9-8	754	05981

3113 - DENTISTS

WORK PERFORMED: This chapter includes occupations concerned with diagnosis, prevention and treatment of diseases, injuries or abnormalities of the teeth, gums, and related oral structures. Worker functions include: analyzing data obtained from examination, X-ray or use of other diagnostic equipment to determine treatment required to alleviate ailments, correct abnormalities, and treat injuries; skilfully handling dental and surgical instruments when performing surgery or applying special treatments; and advising patients in oral health. Work activities include: examining teeth, gums and related structures to determine condition; performing oral surgery; designing, fabricating and fitting oral appliances and dental prostheses; preparing and filling cavities; and extracting teeth.

APTITUDES AND CAPACITIES: Dentists require: learning ability to understand and apply knowledge and techniques required to restore and preserve oral health; verbal ability to understand and effectively employ the technical and scientific vocabulary associated with dentistry, and to communicate with other at all levels; spatial perception to recognize abnormalities in physical structure of teeth, jaws and other dental-facial structures, to design and fit corrective dental appliances that alter position and relationship of teeth and jaws, to design, fabricate and fit dental protheses from mould of teeth, gums and jaws, and to visualize anatomy from X-rays; form perception to examine teeth, gums and related oral structures for disease or other abnormalities, and to analyse X-rays to aid in diagnosis; eye-hand and eye-finger co-ordination, finger dexterity and manual dexterity to manipulate dental and surgical instruments skilfully and accurately while working in the confined area of the oral cavity; colour discrimination to match dentures, crowns or inlays to the natural colour of the patient's teeth, to recognize abnormal colour of gums that might indicate disease, and to discriminate between shades of grey to make diagnosis from X-rays; near visual acuity.

TRAINING AND ENTRY REQUIREMENTS: Dentists normally require: a minimum of one or two years academic study at the university level; a four to five years program at a university school of dentistry, leading to the degree of Doctor of Dental Surgery - D.D.S. - or Doctor of Dental Medicine - D.M.D.; additional post graduate study and clinical training for specialization; registration with, and current licencing of the regulating authority of the province or territory in which they plan to practice.

ADVANCEMENT POSSIBILITIES: Advancement is possible, for 3113-134, DENTIST, by specialization in an area of dental care, provided the necessary qualifications are possessed.

TRANSFER POSSIBILITIES: Transfer may be to private practice, alone or with other dentists, to universities, dental schools, government agencies and private organizations. Positions may be in clinical practice, research, teaching or administration.

OCCUPATIONAL TITLES:

3113-110	ENDODONTIST
3113-114	ORAL SURGEON
3113-118	ORTHODONTIST
3113-122	PAEDODONTIST
3113-126	PERIODONTIST
3113-130	PROSTHODONTIST
3113-134	DENTIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1 2	1 2	2	1	2	3	2	2	2	4	3	L4567	I	6-5	8	7415	05Y1

3115 - VETERINARIANS

WORK PERFORMED: This chapter includes occupations concerned with diagnosing, preventing and treating animal disorders. Worker functions include: analyzing the results of physical examinations or from the use of various diagnostic techniques to determine the presence of abnormal conditions or extent of injuries in animals; using clinical instruments and work aids with precision to perform surgery, innoculations, laboratory tests and autopsies; and advising and counselling on the care and breeding of animals. Work activities include: dressing wounds and setting broken bones; testing for infectious diseases; and administering sedations analgesics, and general or local anaesthetics.

APTITUDES AND CAPACITIES: Veterinarians require: learning ability and intellectual capacity to acquire a thorough knowledge of veterinary medicine, and reasoning ability to diagnose and treat the diseases of animals; verbal ability to use and comprehend the terminology of veterinary science and to accurately give or receive information orally and in writing; spatial perception to visualize the position and arrangement of internal organs and bone structures from X-ray photographs and knowledge of anatomy; form perception to detect animal injuries, diseases, infections or other abnormal conditions during physical examinations; eye-hand co-ordination when performing surgery, setting bones or dressing wounds; finger dexterity to innoculate animals, or to use surgical instruments and laboratory equipment; physical ability to use firm but gentle handling techniques; good vision to detect irregularities when examining internal structures on X-ray films, or when performing laboratory tests; adaptability to conditions where there is a risk of animal bites, kicks or infectious diseases.

TRAINING AND ENTRY REQUIREMENTS: Veterinarians normally require: four to six years university program in veterinary medicine leading to the degree of doctor of veterinary medicine; and successful completion of provincial qualifying examinations.

ADVANCEMENT POSSIBILITIES: Veterinarians are employed in a number of fields, with each field providing its own advantage or form of achievement, such as prestige, challenge, responsibility or higher salaries. The work field is often a matter of personal choice and if advancement possibilities do exist, they would depend on experience, initiative and dedication.

TRANSFER POSSIBILITIES: Opportunities for transfer exist within the discipline to various fields of activity, such as private practice, government services, teaching and private industry. Transfer possibilities also exist for veterinarians interested in animal research, such as 2133-198 PATHOLOGIST, ANIMAL.

OCCUPATIONAL TITLES:
3115-110 VETERINARIAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1 2	1 2	2	1	2	3	2	2	2	5	3	L4567	I6	5	8	76	09Y51

3117 - OSTEOPATHS AND CHIROPRACTORS

WORK PERFORMED: This chapter includes occupations concerned with diagnosing, and treating, mainly by manipulative methods, disorders of the skeletal, muscular structure and other tissue of the human body, and relieving malfunctions due to pressure upon the nervous system. Worker functions include: co-ordinating the treatment to be prescribed and administered on the basis of diagnosis; mentoring to advise and guide patients with regard to their ailment or disability; and manipulating the articulations, more especially those of the spinal column, to relieve disorders; and operating radiological, electro-therapy and thermotherapy equipment to assist in the diagnosis or treatment. Work activities include: diagnosing extent of disorders by examination and using diagnostic aids; adjusting position of displaced vertebrae or other articulations; treating disorders in the musculo-skeletal system and indirectly, in the circulatory and nervous systems, by manipulation; and prescribing corrective exercises and diet.

APTITUDES AND CAPACITIES: Osteopaths and Chiropractors require: learning ability to acquire a knowledge of medical sciences and analytical ability to diagnose the nature, origin and probably course of illness, injury or disorder; verbal ability to use medical terminology, and to communicate effectively with people; spatial perception to visualize the position and arrangement of organs, bone structures and body-tissue from X-ray photographs, thermography and knowledge of anatomy; form perception to see details in body structures and to observe physical indications of misalignment of bones, or damage to body organs or tissues; finger dexterity to feel bone alignment, to administer treatments and to use therapy equipment; manual dexterity to correct musculo-skeletal abnormalities; near visual acuity and accommodation for the detection of abnormalities and the examinination of X-rays.

TRAINING AND ENTRY REQUIREMENTS: Chiropractors normally require: a four year program at an approved college of chiropractic leading to the degree of Doctor of Chiropractic; and completion of provincial licensing and registration requirements. Osteopaths normally require: two to three years of study in a univeristy preferably in a science program; a four year program at a college of osteopathy leading to the degree of Doctor of Osteopathy; one to two years of internship at an approved osteopathic hospital; and completion of provincial licensing and registration requirements.

ADVANCEMENT POSSIBILITIES: Most chiropractors and osteopaths are self-employed; therefore advancement possibilities are usually a matter of personal choice when deciding to enter private practice, medical research, teaching or administration.

TRANSFER POSSIBILITIES: Similarly transfer is a matter of personal choice. However, transfers between the field of chiropractor, osteopathy and other medical disciplines are not possible.

OCCUPATION TITLES:

3117-110 CHIROPRACTOR	3117-114 OSTEOPATH

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	1	2	2	2	1	1	4	4	L4567	I	5	7	745	905Y
			3	2		3		2	2								

3130 - SUPERVISORS, NURSING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with supervising and co-ordinating the activities of personnel engaged in nursing and related duties. Worker functions include: co-ordinating shift work of nursing staff and reporting on events; and supervising nursing staff by determining work procedures and assigning specific nursing duties. Work activities include: assisting in the planning and developing of policies and procedures dealing with nursing service; ensuring physicians' orders and procedures are followed; evaluating nursing staff performance; assisting in the training of nursing staff; and initiating procurement of supplies and equipment.

APTITUDES AND CAPACITIES: Nurse, Supervisors require: learning ability to understand and apply nursing principles and techniques, to comprehend policies, procedures and problems associated with nursing activities and supervision, and to assess training programs, working facilities and methods; verbal ability to communicate effectively, either orally or in writing, when directing, guiding, instructing and training nursing staff; numerical ability to order and account for drugs, equipment and supplies, or to assist in preparing budget; clerical perception to perceive pertinent detail in physicians' instructions and patients' records, and to avoid errors when requisitioning and accounting for drugs and supplies; near visual acuity to examine patients' records and administer drugs.

TRAINING AND ENTRY REQUIREMENTS: Nurse, Supervisors normally require: secondary school graduation at the university level with emphasis on sciences; completion of a two to three-year diploma program in nursing in a community college, or hospital school of nursing; OR completion of a four-year degree program at a university school of nursing, leading to a Bachelor of Science in Nursing. In some provinces, licensing and registration in a provincial association of nurses is mandatory. One or more years of additional training are required for a specialization in, for example, public health, obstetrics or cardiology. Nursing experience in which leadership and administrative skills and competency have been demonstrated is also normally needed.

ADVANCEMENT POSSIBILITIES: Nurse, Supervisors who have the necessary experience and demonstrated abilities may progress to 1134-118 DIRECTOR, NURSING SERVICES; 1134-122 DIRECTOR, PUBLIC-HEALTH NURSING; and 2711-138 UNIVERSITY TEACHER, MEDICAL SCIENCES.

TRANSFER POSSIBILITIES: Transfer for those with suitable qualifications may be to 2793-118 NURSING INSTRUCTOR in schools of nursing. However, transfers are usually limited between various nursing specialities, such as obstetrics or public health.

OCCUPATIONAL TITLES:

3130-110 NURSE, SUPERVISOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTSP.	TEMPS.
	2	2	3	3	3	3	4	4	4	5	3	S4567	I	5	7	265	450Y1

3131-B NURSES, GRADUATE, EXCEPT SUPERVISORS

124, 324

WORK PERFORMED: This chapter includes occupations concerned with assisting physicians, and giving nursing care to the sick, injured and infirm, in hospitals, clinics, schools and industrial plants, and in private and nursing homes. Worker functions include: serving and attending to the needs of patients; manipulating body members and equipment while providing medical care; instructing individuals, families and others in first aid, nutrition, maternal and child care, and prevention and control of diseases; compiling records on vital statistics, patients' condition, treatment given, and other items; and co-ordinating consultative nursing services to various establishments. Work activities include: advising establishments on policies, procedures and problems related to nursing activities; planning and administering school health programs; cleaning and sterilizing instruments and equipment; assisting with operations and deliveries; making beds; bathing and feeding patients; administering injections; dressing wounds; and providing other medical care as required.

APTITUDES AND CAPACITIES: learning ability to understand and apply nursing principles and techniques, and to comprehend the policies, procedures and problems associated with nursing activities; verbal ability to understand the meaning of words and ideas associated with them, in order to comprehend medical terminology, follow doctors' prescriptions, and communicate effectively with administrators and medical personnel; clerical perception to discern pertinent detail in doctors' prescriptions, and to maintain records on patients' conditions, treatment given and other significant factors; spatial perception to visualize body structure, respiratory, circulatory and nervous systems; form perception to detect patients' condition and reaction to drugs and treatments or any significant change in patient's general appearance, and observing wave patterns on patient-monitoring equipment; finger dexterity to accurately manipulate hypodermic needles, blood-pressure gauges and other instruments; manual dexterity in order to bathe patients, dress wounds and perform other nursing duties; good health, and sufficient strength to perform light to medium work, requiring the lifting of equipment, the aiding of incapacitated patients, and frequent walking, standing and bending; near visual acuity to read instruments and to set dials on medical equipment, and colour discrimination to recognize certain disease symptoms; capacity to work while exposed to the usual odours and gases found in hospital environments; for occupation 3131-112 OUTPOST NURSE, the capacity to travel long distances in Canada's Northland in all types of weather, by various means of transportation, under conditions that are frequently hazardous.

TRAINING AND ENTRY REQUIREMENTS: twelve or thirteen years of general education, depending on the province, with credits in mathematics, chemistry, physics and biology; completion of a two or three year diploma program in nursing at a community college, or a hospital, regional or independent school of nursing; or completion of a four-year degree program at a university school of nursing, leading to a Bachelor of Science in Nursing. In some provinces, licensing and registration in a provincial association of nurses is mandatory. In addition 3131-112 OUTPOST NURSE normally requires at least one year of graduate nursing experience, plus completion of a two-year program in Outpost Nursing or Advanced Obstetrics at a university school of nursing; 3131-114 NURSE, SCHOOL normally requires at least one year of graduate nursing experience before appointment; 3131-118 NURSE, PUBLIC HEALTH normally requires completion of a two-year program in Public Health Nursing at a university school of nursing.

ADVANCEMENT POSSIBILITIES: Workers may advance to various supervisory, teaching, administrative or research positions in the field of nursing, depending on their experience and qualifications.

TRANSFER POSSIBILITIES: Because of basic similarities in work performed, many nurses could transfer to different occupations within this chapter. Transfer is also possible between various types of establishment, such as public hospitals and nursing homes; between clinical specializations, such as obstetrics and pediatrics; to service in the Canadian Armed Forces, or to service overseas.

OCCUPATIONAL TITLES:

3131-112 OUTPOST NURSE
3131-114 NURSE, SCHOOL
3131-118 NURSE, PUBLIC HEALTH

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	3	3	3	3	3	3	4	3	M34567	I-B267	5	7	746	5Y018

3131-C NURSES, GRADUATE, EXCEPT SUPERVISORS

WORK PERFORMED: This chapter includes occupations concerned with assisting physicians and giving nursing care to the sick, injured and infirm, in hospitals, clinics, schools, and industrial plants, and in private and nursing homes. Worker functions include: serving and attending to the needs of patients; manipulating body members and euqipment while providing medical care; instructing individuals, families and others in first aid, nutrition, maternal and child care, and the prevention and control of diseases; compiling records on vital statistics, patients' condition, treatment given, and other items; and co-ordinating consultative nursing services to various establishments. Work activities include: advising establishments on policies, procedures and problems related to nursing activities; planning and administering school health programs; cleaning and sterilizing instruments and equipment; assisting with operations and deliveries; making beds; bathing and feeding patients; administering injections; dressing wounds; and providing other medical care as required.

APTITUDES AND CAPACITIES: learning ability to understand and apply nursing principles and techniques, and to comprehend the policies, procedures and problems associated with nursing activities; verbal ability to understand the meaning of words and ideas associated with them, in order to comprehend medical terminology, follow doctors' prescriptions, and communicate effectively with administrators and medical personnel; clerical perception to discern pertinent detail in doctors' prescriptions, and to maintain records on patients' conditions, treatment given and other significant factors; spatial perception to visualize body structure, respiratory, circulatory and nervous systems when providing patient care; form perception to detect patients' condition and and reaction to drugs and treatments or any significant change in patient's general appearance, such as spread of skin rash or inflammation in area of wound or incision, and observing wave patterns on patient-monitoring equipment; finger dexterity to accurately manipulate hypodermic needles, blood-pressure gauges and other instruments; manual dexterity, and the capacity to extend the hands and arms in any direction, in order to bathe patients, dress wounds and perform other nursing duties; good health, and sufficient strength to perform light to medium work, requiring the lifting of equipment, the aiding of incapacitated patients, and frequent walking, standing and bending; near visual acuity to read instruments and to set dials on medical equipment, and colour discrimination to recognize certain disease symptoms; capacity to work while exposed to the usual odours and gases found in hospital environments.

TRAINING AND ENTRY REQUIREMENTS: twelve year or thirteen years of general education, depending on the province, with credits in mathematics, chemistry, physics and biology; completion of a two or three year diploma program in nursing at a community college, or a hospital, regional or independent school of nursing; or completion of a four year degree program at a university school of nursing, leading to a Bachelor Science in Nursing; in addition, 3131-130 NURSE, GENERAL DUTY normally requires up to one year of additional training to work in clinical specializations, such as obstetrics, cardiology and psychiatry. In the western provinces, 3131-138 PSYCHIATRIC NURSES are distinct from general duty nurses, and complete a two or three year diploma program at an approved school of psychiatric nursing, are registered as psychiatric nurses, and are provincially licensed.

ADVANCEMENT POSSIBILITIES: Graduate Nurses may advance to various supervisory, teaching, administrative or research positions in the field of nursing, depending on their experience and qualifications.

TRANSFER POSSIBILITIES: Because of basic similarities in work performed, many nurses could transfer from occupation to occupation within this chapter. Transfer is also possible between various types of establishments, such as public hospitals and nursing homes; between clinical specializations, such as obstetrics and pediatrics; to service in the Canadian Armed Forces; or to service overseas.

OCCUPATIONAL TITLES:

3131-122 NURSE, OCCUPATIONAL HEALTH
3131-126 NURSE, DOCTOR'S OFFICE OR CLINIC
3131-130 NURSE, GENERAL DUTY
3131-134 NURSE, PRIVATE DUTY
3131-138 PSYCHIATRIC NURSE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	3	3	3	3	3	3	4	3	L-M4567	I7	5-4	7	47	5Y8
		3		4							4						

3134 - NURSING ASSISTANTS

WORK PERFORMED: This chapter includes occupations concerned with providing assistance to nursing staffs of hospitals, clinics and nursing homes, by performing routine services related to the care of patients. Worker functions include: attending to the needs of patients as directed by the nursing staff; and using body members to move patients, and give treatments as directed by nursing staff. Work activities include: providing personal services, such as bathing, shaving and dressing patients: serving nutrients, and feeding or assisting patients to feed themselves; taking and recording temperature, pulse and blood pressure; answering call bells; and directing visitors and answering their queries.

APTITUDES AND CAPACITIES: Nursing Assistants require: ability to learn and use proper bedside manners and the techniques of patient care, and to understand directives; verbal ability to communicate with patients, nursing staff and to answer visitors queries; form perception to determine therometer and blood pressure apparatus readings; clerical perception to read and correctly record data, such as temperature, pulse rate and blood pressure; eye-hand-finger co-ordination for activities, such as shaving and feeding patients and changing dressings; manual dexterity to massage patients and give enemas; capacity for work involving frequent lifting of bed linens, food trays and nursing equipment, and moving patients into or out of beds and wheelchairs; capacity to work in stooping position and to reach to make beds, and lift and move patients.

TRAINING AND ENTRY REQUIREMENTS: Nursing Assistants normally require: nine to ten years of general education; an eight to twelve-month program of studies and practical experience, usually conducted by a provincial health department of in a hospital; and certification or registration in accordance with provincial regulations.

ADVANCEMENT POSSIBILITIES: This occupation is terminal since supervisory positions are held by registered graduate nurses only.

TRANSFER POSSIBILITIES: Nursing Assistants who receive additional training may transfer to other wards within the hospital or to occupations such as, 3139-138 FIRST-AID ATTENDANT, or to 3139-142 HOMEMAKER.

OCCUPATIONAL TITLES:
3134-110 NURSING ASSISTANT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	4	3	3	3	3	4	4	M3467	I	3	5	41	518

3135 - NURSING AIDES AND ORDERLIES

WORK PERFORMED: This chapter includes occupations concerned with providing auxiliary services in the care of patients in establishments, such as hospitals, nursing homes and clinics. Worker functions include: attending to the personal needs of patients as directed by nursing and medical staff; and manipulating body members to set up equipment, such as oxygen tents and portable X-ray machines, and to lift patients onto and from beds. Work activities include: dressing and undressing patients; serving and collecting food trays; answering patients' call-bells; bathing, shaving, massaging or feeding patients; changing bed linen; taking and recording temperature, pulse and respiration rates; recording food and liquid intake and output; cleaning, sterilizing and storing treatment trays, instruments and other supplies; and transporting patients to and from treatment areas.

APTITUDES AND CAPACITIES: Nursing Aides and Orderlies require: learning ability to understand and apply patient-care techniques and to correctly carry out nurses' instructions; form perception to visually examine treatment trays, instruments and other supplies to determine if they are properly cleaned, and to recognize changes in patients' condition; clerical perception to read thermometer, and to record pertinent information, such as pulse, respiration rate, and food and liquid intake and output; eye-hand-finger co-ordination to make precise movements when bathing or shaving patients; manual dexterity to move the hands easily and skilfully when feeding patients or giving enemas; sufficient strength to set up oxygen tents and portable X-ray machines, and to move patients onto and from beds, wheelchairs or stretchers; agility to work in awkward positions, such as stooping and crouching, and physical ability to move the hands and arms in order to bathe patients, change bed linen, and transport patients in wheelchairs or on stretchers; near visual acuity to shave patients and to take and record patients' temperature.

TRAINING AND ENTRY REQUIREMENTS: Nursing Aides and Orderlies normally require: ten years of general education; a four to ten-month vocational school program, depending on the province, consisting of classroom and practical training; or one year of in-service hospital apprenticeship.

ADVANCEMENT POSSIBILITIES: Advancement for Nursing Aides and Orderlies is limited to those who undertake further training to become a Registered Practical Nurse or Registered Nurse. Some opportunities also exist to supervisory positions.

TRANSFER POSSIBILITIES: Nursing Aides and Orderlies may transfer out of the hospital setting to, for example 3139-138 FIRST-AID ATTENDANT in industry or recreational and sports arenas, or to 3139-142 HOMEMAKER, or 3139-146 CHILD-CARE ATTENDANT, SCHOOL.

OCCUPATIONAL TITLES:

3135-110 NURSE AID

3135-114 ORDERLY

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{4}$	4	4	4	$\underline{4}$	$\frac{3}{4}$	$\underline{3}$	3	$\underline{3}$	4	4	M347	I	3	4	41	531

3137-A PHYSIOTHERAPISTS, OCCUPATIONAL AND OTHER THERAPISTS

104, 108

WORK PERFORMED: This chapter includes occupations concerned with the therapeutic treatment of physically handicapped, impaired or disabled persons, by physical and mechanical means. Worker functions include: administering and analyzing tests to determine extent of patients' impairments or disabilities, and treatment required; counselling and guiding individuals to adjust to their handicaps; instructing them in communication techniques, on the use of crutches, braces and other devices; manipulating body members, or operating therapeutic equipment, to treat patients; and planning and co-ordinating remedial programs. Work activities include: assessing persons' aptitudes, capabilities, interests and other factors to determine therapy required; providing treatment using heat, water, light, sound, exercise, manual arts, speech or hearing training; conducting research into communication disorders; and acting as a consultant to educational, medical and other professional groups.

APTITUDES AND CAPACITIES: Audiologists and Speech Therapists require: learning ability to understand, acquire, and apply the techniques of assessment and treatment of human communication disorders, and to perform related research; verbal ability to communicate effectively with patients, families and other personnel, to understand and use the terminology associated with communication therapy, and a knowledge of language to recognize and correct language and speech impairments; form perception to take accurate readings from electroacoustic and other test instruments, and to observe formation of mouth and position of tongue during speech, and facial structure to detect abnormalities which might cause speech irregularities

TRAINING AND ENTRY REQUIREMENTS: Audiologists and Speech Therapists normally require: completion of a bachelor's degree program in the social sciences or humanities, followed by two years of post-graduate university study in audiology and speech therapy leading to a diploma or master's degree; or completion of a four-year university undergraduate program in speech and hearing science leading to a bachelor's degree. A period of internship and clinical experience is usually included in the above mentioned training programs. In some provinces, registered membership in a provincial speech and hearing association in order to practice is required.

ADVANCEMENT POSSIBILITIES: Audiologists and Speech Therapists who display a potential for supervision and leadership could be promoted to responsible positions, such as unit supervisor or department head. Some workers could enter private practice or advance to positions involving research or teaching activities.

TRANSFER POSSIBILITIES: Because Audiologists and Speech Therapists normally follow similar courses of training, people in one discipline may be able to transfer to the other discipline with some further training; registration and approval by the regulating authority.

OCCUPATIONAL TITLES:

3137-110 AUDIOLOGIST
3137-114 SPEECH THERAPIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	3	2	3	4	3	4	5	4	S4567	I	5	7	745	90Y5
					3			4				S567					

3137-3 PHYSIOTHERAPISTS, OCCUPATIONAL AND OTHER THERAPISTS

124, 364

WORK PERFORMED: This chapter includes occupations concerned with the therapeutic treatment of physically handicapped, impaired or disabled persons, by physical and mechanical means. Worker functions include: administering and analyzing tests to determine extent of patients' impairments or disabilities, and treatment required; counselling and guiding individuals to adjust to their handicaps; instructing them in communication techniques, on the use of crutches, braces and other devices; manipulating body members, or operating therapeutic equipment, to treat patients; and planning and co-ordinating remedial programs. Work activities include: assessing persons' aptitudes, capabilities, interests and other factors to determine therapy required; providing treatment using heat, water, light, sound, exercise, manual arts, speech or hearing training; conducting research into communication disorders; and acting as a consultant to educational, medical and other professional groups.

APTITUDES AND CAPACITIES: Occupational Therapists and Physiotherapists require: learning ability to understand, acquire and apply rehabilitation techniques, and to assess patient's aptitudes, capabilities, interests and environmental conditions to plan suitable therapy program; verbal ability to communicate effectively with patient, families and other professional personnel, and to understand and use the terminology associated with occupational and physiotherapy; manual and finger dexterity to massage muscles, give corrective exercises, operate therapeutic equipment and demonstrate creative or manual skills.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: completion of a two or three-year diploma program in physiotherapy and/or occupational therapy at a university; or, completion of a four year bachelor's degree program in physiotherapy and/or occupational therapy at some universities; and a period of internship and clinical experience during or after the above mentioned programs. In some provinces, registered membership in a provincial or national association of physiotherapy or occupational therapy in order to practice is required.

ADVANCEMENT POSSIBILITIES: Workers who display a potential for supervision and training could be promoted to positions, such as unit supervisor or department head. Some workers could enter private practice, or advance to research or teaching positions in hospitals, universities or community health agencies.

TRANSFER POSSIBLITIES: Those persons who have completed a program in both occupational therapy and physiotherapy, may be able to transfer from one discipline to another, with additional training, registration and approval by the regulating authority.

OCCUPATIONAL TITLES:

3137-118 OCCUPATIONAL THERAPIST
3137-122 PHYSIOTHERAPIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	3	3	3	4	3	3	4	5	L457 L345	I	4	7	7645	5901

3151-A PHARMACISTS

WORK PERFORMED: This chapter includes occupations concerned with compounding and dispensing pharmaceuticals and related preparations, and developing new medicinal substances. Worker functions include: working with precision to weigh, measure and mix drugs and other medicinal compounds according to physicians' prescription; and synthesizing data obtained from laboratory tests to determine purity, identify and strength of drugs, and to assist in the development of new drugs. Work activities include: bottling, labelling and packaging prepared compounds; keeping inventory of all pharmaceuticals issued and returned; maintaining control records of narcotics and poisons, and drugs dispensed; assisting with the design, development and testing of suitable equipment for the production of new products; developing legally-recognized standards for drugs used in the preparation of pharmaceuticals; and determining the most suitable containers for medicinal substances.

APTITUDES AND CAPACITIES: Pharmacists require: learning ability to understand and apply the underlying principles and methods concerned with pharmaceuticals, and the basic physical and biological sciences concerned with the application and effects of drugs; verbal ability to give information and advice concerning uses and effects of drugs and medicines including incompatability of drugs, warnings and contra-indications; numerical ability to work with advanced mathematics, derive formulae when developing new products and improving existing ones, and to ensure that proper dosages have been prescribed; form perception to make visual comparisons and discriminations when preparing pharmaceutical compounds by physical and chemical procedures; clerical ability to accurately maintain control records of narcotics, poisons and prescriptions, to label prepared compounds, and to read instructions correctly when filling prescriptions; finger dexterity to quickly and accurately manipulate small objects such as capsules when filling them with ingredients, using dispensing equipment, and when employing test equipment to analyze drugs; ability to speak to doctors and customers and to receive prescription orders in person and by telephone; near visual acuity to read dials and gauges on dispensing and laboratory-test equipment, and colour vision to recognize drugs in tablet or capsule form.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: a four year university program in pharmacy leading to the degree of Bachelor of Science in Pharmacy - B.Sc. Pharm. or B.S.P.; a practical training period of from thirty days to eighteen months, as specified by provincial regulations, in a retail or hospital pharmacy under the supervision of a registered pharmacist; and pass a qualifying examination with the appropriate provincial licencing body which confers the right to practice; additional post-graduate training in research and development techniques.

ADVANCEMENT POSSIBILITIES: Pharmacists with managerial ability may advance to 1131-122 MANAGER, LIFE SCIENCES PROGRAM and those who take post-graduate studies leading to a Master of Science or Doctorate degree may advance to occupations, such as 2711-138 UNIVERSITY TEACHER, MEDICAL SCIENCES, or 2133-210 PHARMACOLOGIST, Pharmacists who have a sound knowledge of business practices find satisfaction and good income through self-employment.

TRANSFER POSSIBILITIES: Although Pharmacists generally remain in their chosen field, those who have particular abilities may transfer to occupations in sales and government or industry inspecting, such as 5133-114 PHARMACEUTICAL REPRESENTATIVE; 1116-158 INSPECTOR, HEALTH STANDARDS; or 8296-110 INSPECTOR, PHARMACEUTICALS AND TOILETRIES.

OCCUPATIONAL TITLES:

3151-114 PHARMACIST, INDUSTRIAL

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	1	1	3	2	3	3	3	3	5	3	L4567	I	6	8	71	0Y95

3151-B PHARMACISTS

WORK PERFORMED: This chapter includes occupations concerned with compounding and dispensing pharmaceuticals and related preparations, and developing new medicinal substances. Worker functions include: working with precision to weigh, measure and mix drugs and other medicinal compounds according to physicians' prescription; and synthesizing data obtained from laboratory tests to determine purity, identity and strength of drugs, and to assist in the development of new drugs. Work activities include: bottling, labelling and packaging prepared compounds; keeping inventory of all pharmaceuticals issued and returned; maintaining control records of narcotics and poisons, and drugs dispensed; assisting with the design, development and testing of suitable equipment for the production of new products; developing legally-recognized standards for drugs used in the preparation of pharmaceuticals; and determining the most suitable containers for medicinal substances.

APTITUDES AND CAPACITIES: Pharmacists require: learning ability to understand and apply the underlying principles and methods concerned with pharmaceuticals, and the basic physical and biological sciences concerned with the application and effects of drugs; verbal ability to give information and advice concerning uses and effects of drugs and medicines including incompatability of drugs, warnings and contra-indications; numerical ability to work with advanced mathematics, derive formulae when developing new products and improving existing ones, and to ensure that proper dosages have been prescribed; form perception to make visual comparisons and discriminations when preparing pharmaceutical compounds by physical and chemical procedures; clerical ability to accurately maintain control records of narcotics, poisons and prescriptions, to label prepared compounds, and to read instructions correctly when filling prescriptions; finger dexterity to quickly and accurately manipulate small objects such as capsules when filling them with ingredients, using dispensing equipment, and when employing test equipment to analyze drugs; ability to speak to doctors and customers and to receive prescription orders in person and by telephone; near visual acuity to read dials and gauges on dispensing and laboratory-test equipment, and colour vision to recognize drugs in tablet or capsule form.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: a four year university program in pharmacy leading to the degree of Bachelor of Science in Pharmacy - B.Sc. Pharm. or B.S.P.; a practical training period of from thirty days to eighteen months, as specified by provincial regulations, in a retail or hospital pharmacy under the supervision of a registered pharmacist; and pass a qualifying examination with the appropriate provincial licencing body which confers the right to practice.

ADVANCEMENT POSSIBILITIES: Pharmacists with managerial ability may advance to 1131-122 MANAGER, LIFE SCIENCES PROGRAM and those who take post-graduate studies leading to a Master of Science or Doctorate degree may advance to occupations, such as 2711-138 UNIVERSITY TEACHER, MEDICAL SCIENCES, or 2133-210 PHARMACOLOGIST, Pharmacists who have a sound knowledge of business practices find satisfaction and good income through self-employment.

TRANSFER POSSIBILITIES: Although Pharmacists generally remain in their chosen field, those who have particular abilities may transfer to occupations in sales and government or industry inspecting, such as 5133-114 PHARMACEUTICAL REPRESENTATIVE; 1116-158 INSPECTOR, HEALTH STANDARDS; or 8296-110 INSPECTOR, PHARMACEUTICALS AND TOILETRIES.

OCCUPATIONAL TITLES:

3151-110 PHARMACIST, HOSPITAL	3151-118 PHARMACIST, RETAIL

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	4	2	3	3	3	3	5	3	L4567	I	5	8	71	0Y5

3152-B DIETITIANS AND NUTRITIONISTS 128, 138

WORK PERFORMED: This chapter includes occupations concerned with conducting nutritional research programs, providing advice on food-service management and group feeding, and planning and directing the preparation and serving of meals by applying the principles of nutrition and dietetics. Worker functions include: synthesizing data obtained from extensive experimentation on individual foods and on methods of food processing, and applying the results to human nutrition; co-ordinating activities of food-service programs in hospitals, schools, hotels and other establishments to ensure proper nutrition; instructing individuals or groups in the application of the principles of nutrition and diet therapy; supervising and training workers engaged in preparing and serving meals; and skilfully using precision-measuring instruments and other laboratory equipment. Work activities include: participating in research, giving consultative services, advising individuals and groups, lecturing on nutrition and dietetics, and planning regular and special diet menus.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply the principles of dietetics and nutrition, and the ability to plan, organize, supervise and co-ordinate operational activities or conduct research studies on nutrition and diet; verbal ability to understand and use a technical vocabulary and to communicate effectively when instructing or advising people; numerical ability to accurately calculate food costs and nutritional requirements when planning menus and budgets, or conducting research studies; clerical perception to discern pertinent detail in narrative and tabular material, and to avoid perceptual errors in mathematical computations when measuring food quantities, recording results of tests, or preparing reports; good visual acuity and colour vision to observe the preparation and presentation of foodstuffs.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: a bachelor of science degree with specialization in nutrition and dietetics; one year of internship in a hospital or commercial establishment approved by the Canadian Dietetic Association.

ADVANCEMENT POSSIBILITIES: Dietitians and Nutritionists who have demonstrated leadership and organizational ability may advance to 1134-110 DIRECTOR OF DIETETICS.

TRANSFER POSSIBILITIES: Dietitians and Nutritionists may transfer to related work within their own field or to specific areas in teaching public-health and home-care programs where their knowledge of dietetics and nutrition could be utilized.

OCCUPATIONAL TITLES:

3152-114	DIETARY CONSULTANT	3152-122	DIETITIAN
3152-118	NUTRITIONIST	3152-126	DIETITIAN, THERAPEUTIC

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	3	3	3	4	4	4	5	4	1.567	I	5	7	672	09541

3153 - OPTOMETRISTS

WORK PERFORMED: This chapter includes occupations concerned with conserving, improving and correcting human vision by prescribing eyeglasses, contact lenses, eye exercises, and with other eye and vision-care procedures that do not require drugs or surgery. Worker functions include: determining visual efficiency and prescribing appropriate vision care; counselling patients on use and care of eyeglasses and contact lenses, visual hygiene, lighting, working distances and safety factors; and manipulating measuring instruments and small hand tools when assembling, fitting or adjusting eyeglasses for patients. Work activities include: examining patients' eyes, using specialized ophthalmic instruments to locate and measure defects in vision; referring patients to medical practitioners if signs of ocular disease are detected; and verifying finished lenses for conformity to prescriptions.

APTITUDES AND CAPACITIES: Optometrists require: learning ability to understand and apply knowledge and techniques required for the conservation and correction of vision; verbal ability to comprehend language and terminology of optometry, prepare prescriptions for eyeglasses, describe eye and vision care, and communicate effectively with patients of all ages; numerical ability for the study of mathematics and physics basic to an understanding of optics; spatial perception to visualize objects in two or three dimensions, reflected in use of optometric instruments or combining lenses of various strengths to determine correction required for the patient; form perception to detect abnormalities or presence of disease in the eyes, optic nerves or surrounding areas; finger dexterity to quickly and accurately manipulate small objects and instruments, or when demonstrating the method of insertion, removal and care of contact lenses; colour discrimination to recognize differences or shadings of colour during internal or external eye examinations and to obtain clues to vision problems; ability to reach for and handle measuring equipment during examinations of patients' eyes; near-visual acuity, depth perception and accommodation to examine and detect minute abnormalities and irregularities of the eyes and their adnexa, and in fit of glasses.

TRAINING AND ENTRY REQUIREMENTS: Optometrists normally require: graduation from an approved university optometry course of three to five years duration; and successful completion of a provincial qualifying examination. The particular requirements for examinations, licensing and registration to practise optometry are provincially controlled and they vary from province to province.

ADVANCEMENT POSSIBILITIES: Advancement for optometrists in general practice may come through formation of a business arrangement, such as a partnership or enlargement of the establishment, or through entry into clinical practice.

TRANSFER POSSIBILITIES: Transfer possibilities are limited because of the nature of the work, but some optometrists who have particular abilities, may transfer to work in public health, education, or research or become consultants on visual matters to public or industrial organizations.

OCCUPATIONAL TITLES:

3153-110 OPTOMETRIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GEC	SVP	INTS.	TEMPS.
	2	2	2	2	2	3	3	3	3	5	2	S47	I	5	7	47	OY5

3154 - DISPENSING OPTICIANS

WORK PERFORMED: This chapter includes occupations concerned with fitting eyeglasses and contact lenses to customers, according to prescriptions of ophthalmologists or optometrists. Worker functions include: compiling data regarding the wearer's physical appearance, fitting requirements, and optical and vocational needs; discussing characteristics of eyeglasses with customers; working to close tolerances when taking pupillary and facial measurements, and marking lenses for edging and assembly; and manipulating tools to cut and edge lenses, and assemble eyeglass frames. Work activities include: assisting customers with selection of frames of the most suitable size, shape and colour; examining finished spectacles for defects; adjusting eyeglass frames to fit wearer; fitting contact lenses; and advising wearers concerning their use and care.

APTITUDES AND CAPACITIES: Dispensing Opticians require: learning ability to acquire a knowledge of optics, to understand optical prescriptions, and reasoning ability to apply the information and provide vision aids that meet the needs of customers; verbal ability to discuss requirements and desires of customers and to advise them in selection of suitable lenses and frames; spatial perception to determine where the lenses should be in relation to the eye pupils, and to visualize the functioning of fitted spectacles and contact lenses; form perception to observe scratches, chips, looseness or incorrect alignment when examining eyeglasses for defects, and to verify that prescription specifications are met; ability to co-ordinate the eyes, hands and fingers rapidly and precisely, and finger dexterity to manipulate small tools and objects when assembling eyeglasses and fitting them to customers, or while demonstrating use and care of contact lenses; capacity to extend arms and work with hands when measuring and fitting eyeglasses; colour discrimination to advise customers on selection of appropriate colour of frames; near-visual acuity and depth perception to observe defects, assemble small parts and accurately fit spectacles for customers.

TRAINING AND ENTRY REQUIREMENTS:

Dispensing Opticians normally require: a minimum of twelve years of general education; and three to four years of on-the-job training, under the guidance of a licensed optician. Requirements for licensing and registration vary widely from province to province.

ADVANCEMENT POSSIBILITIES:

Dispensing Opticians who have knowledge of business practices may open their own ophthalmic dispensing business.

TRANSFER POSSIBILITIES:

Dispensing Opticians have limited transfer possibilities because of the specialized nature of their work; however, they may transfer to 8373-210 OPTICIAN, or to some occupations in Chapter 8376 INSPECTING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIALS MACHINING. Some dispensing opticians may, with additional training, become sales or technical representatives for opthalmic or optical goods suppliers.

OCCUPATIONAL TITLES:

3154-110 DISPENSING OPTICIAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	2	3	5	4	L47	I	4	7	902	Y051

3155 - RADIOLOGICAL TECHNOLOGISTS AND TECHNICIANS 361, 371

WORK PERFORMED: This chapter includes occupations concerned with the diagnostic or therapeutic application of radiant energy from X-rays and radioactive materials. Worker functions include: skillfully using X-ray machines, electroscopes, scintillation-and-position scanners, cobalt machines and other equipment to diagnose or treat diseases, injuries and abnormalities, under the supervision of a radiologist or other medical specialist; compiling information regarding diagnostic or therapeutic procedures to be undertaken on patients, and planning activities accordingly. Work activities include: preparing drugs, chemical solutions or radioactive isotopes to be administered by physicians; positioning patients and protecting unaffected body areas; setting-up and adjusting equipment; operating radioisotope scanning equipment to produce photographic records or images of irradiated areas; operating equipment to take and process radiographs used in diagnosis of illnesses or injuries; and operating equipment to treat diseases by means of ionizing radiations such as X-rays, radium and radioactive cobalt.

APTITUDES AND CAPACITIES: Radiological Technologists and Technicians require: learning ability to complete such courses as anatomy, pathology, physiology and physics, to understand the underlying principles of radiography, radiotherapy or nuclear medicine, and to operate diagnostic or therapeutic equipment: verbal ability to understand and use the terminology of the science of radiology, to communicate orally with patients, physicians and other medical personnel in order to give and receive information or instructions, and to write clear and accurate technical reports; numerical ability to make mathematical calculations quickly and accurately for a particular treatment plan, to ascertain the amount of radiation reaching a particular body area, and to determine blood volume and red-cell survival during radioisotope studies; spatial perception to visualize body structures in order to place the patient in the position that affords the best view of the affected area, or the best angle for radiation treatment; form perception to examine developed films for over or under exposure, movement on part of patient, or processing defects; eye-hand-co-ordination to operate equipment, and to lift and move patients; finger dexterity to set-up, adjust, and operate equipment; capacity to perform medium work, requiring the lifting and positioning of equipment and patients, and the ability to stand for long periods of time; near-visual acuity to set-up equipment, to adjust and operate controls and to study developed films.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: a two to three-year program of studies at a community college, institute of technology or hospital school, depending on the radiological techniques studies; and completion of qualification examination of the Canadian Society of Radiological Technicians.

ADVANCEMENT POSSIBILITIES: Radiological technicians may qualify in more than one radiological discipline by taking an additional year of training in the discipline at an approved school. In addition, technicians who have a potential for supervising, leadership or instructing, may advance to positions such as chief technician, senior technician or instructor.

TRANSFER POSSIBILITIES: Related employment possibilities may exist in industrial radiography occupations found in Group 9916, INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, N.E.C., depending on the nature of the employer's requirements.

OCCUPATIONAL TITLES:

3155-110 NUCLEAR-MEDICINE TECHNOLOGIST
3155-114 DIAGNOSTIC-RADIOLOGICAL TECHNICIAN
3155-118 RADIOTHERAPY TECHNICIAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	3	3	3	3	5	4	M467	I	5-4	7-6	79	50Y1
	2	2	2		2												50Y

3156-A MEDICAL LABORATORY TECHNOLOGISTS AND TECHNICIANS

WORK PERFORMED: This chapter includes occupations concerned with carrying out technological and technical functions in a medical specialization, such as haematology, histology, medical mycology, or parasitology or serology, to obtain data for use in the diagnosis, treatment and control of diseases. Worker functions include: analyzing test results for use in the diagnosis, treatment and control of diseases; compiling data obtained through examination and analysis of plant and animal cells; and preparing, examining and testing specimen samples, using a variety of laboratory equipment and techniques. Work activities include: determining bleeding or coagulation time and blood type; isolating substances in body fluids; growing microbes in artificial media, and studying their effect on human tissue; conducting laboratory tests and experiments to find ways to eliminate microbes and restore damaged tissue; and to develop vaccines and antibiotics.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and acquire scientific background knowledge in an area of medical specialization, and to apply scientific principles involved in technical and technological laboratory practices in that area; verbal ability to understand and use the scientific terminology associated with an area of medical specialization; numerical ability to make calculations involved in laboratory experimentation and tests; form perception to make accurate observations during laboratory experiments and tests, to discern abnormalities in body specimens, and to take precise readings from laboratory instruments; finger dexterity to handle precision instruments; colour discrimination to recognize stains in slides, and to note colour changes and variations during laboratory test procedures; capacity to handle, finger and feel objects, materials and scientific instruments; near visual acuity to discern details when using microscope or making other observations.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: graduation from secondary school at the university entrance level; completion of a three to four year program in a community college or university, including practical training at an approved laboratory.

ADVANCEMENT POSSIBILITIES: Career advancement depends on education, experience and demonstrated ability. Medical Laboratory Technologists may advance to senior positions by qualifying for advanced certification in general technology or in a specialized area.

TRANSFER POSSIBILITIES: Medical Laboratory Technologists may transfer to other clinical technology departments or to other departments of hospital specialization. Providing the university degree requirements accompany the technological experience there are possibilities of transfer to teaching and research occupations.

OCCUPATIONAL TITLES:

3156-110	BIOCHEMISTRY TECHNOLOGIST
3156-114	CYTOTECHNOLOGIST
3156-118	HISTOLOGY TECHNOLOGIST
3156-122	MEDICAL-LABORATORY TECHNOLOGIST
3156-126	MICROBIOLOGY TECHNOLOGIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	3	2	3	3	3	3	5	3	L47	I	5	7	791	OY1

3156-B MEDICAL LABORATORY TECHNOLOGISTS AND TECHNICIANS

WORK PERFORMED: This chapter includes occupations concerned with carrying out technological and technical functions in a medical specialization, such as haematology, histology, medical mycology, or parasitology or serology, to obtain data for use in the diagnosis, treatment and control of diseases. Worker functions include: analyzing test results for use in the diagnosis, treatment and control of diseases; compiling data obtained through examination and analysis of plant and animal cells; and preparing, examining and testing specimen samples, using a variety of laboratory equipment and techniques. Work activities include: determining bleeding or coagulation time and blood type; isolating substances in body fluids; growing microbes in artificial media, and studying their effect on human tissue; conducting laboratory tests and experiments to find ways to eliminate microbes and restore damaged tissue; and to develop vaccines and antibiotics.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and acquire scientific background knowledge in an area of medical specialization, and to apply scientific principles involved in technical and technological laboratory practices in that area; verbal ability to understand and use the scientific terminology associated with an area of medical specialization; numerical ability to make calculations involved in laboratory experimentation and tests; form perception to make accurate observations during laboratory experiments and tests, to discern abnormalities in body specimens, and to take precise readings from laboratory instruments; finger dexterity to handle precision instruments; colour discrimination to recognize stains in slides, and to note colour changes and variations during laboratory test procedures; capacity to handle, finger and feel objects, materials and scientific instruments; near visual acuity to discern details when using microscope or making other observations.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require eleven to thirteen years of progressive education depending on the specific vocation; and completion of a two-part course in theory and practice of up to two years, offered at institutions of technology and selected training centres in hospital and medical laboratories.

ADVANCEMENT POSSIBILITIES: Medical Laboratory Technicians who perform limited duties but possess the acceptable academic qualifications may obtain the additional training required for advancement. Through examination for certification and registration of qualfications which signifies competency in a wider area of laboratory techniques, they may advance to medical laboratory technologist occupations.

TRANSFER POSSIBILITIES: Because of the nature of training and experience in the medical specialization, transfers would normally be to other medical laboratory department specialties or other medical-technologist support activities.

OCCUPATIONAL TITLES:

3156-130 LABORATORY TECHNICIAN, VETERINARY
3156-134 MEDICAL-LABORATORY TECHNICIAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	3	3	3	3	3	3	3	3	5	3	L47	I	5-4	6-5	791	OY1

3157-A DENTAL HYGIENISTS, ASSISTANTS AND TECHNICIANS

WORK PERFORMED: This chapter includes occupations concerned with supportive work in the field of dentistry. Worker functions include: analyzing prescriptions or specifications to determine individual patient's requirements; precision working to close tolerances when fabricating dental appliances; manipulating tools and equipment to form, polish or finish appliances; comparing resultant products to specifications; supervising and co-ordinating the activities of a dental laboratory; and instructing groups or individuals in oral hygiene. Work activities include: preventing oral diseases by prophylactic treatments; making and repairing dentures, bite blocks, tooth bands, positioners and similar appliances; and assisting dentists during dental procedures.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply dental hygiene techniques for the prevention of oral diseases; verbal ability to understand the terminology associated with dental hygiene, and to communicate effectively with individuals and groups; spaital perception to visualize the normal function and structure of teeth and mouth; form perception to detect dental defects during primary examination of patients; eye-hand-finger co-ordination and manual dexterity to manipulate dental instruments skilfully during treatment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: graduation from high school at the university entrance level; and a two-year university program leading to the diploma--Dental Hygienist.

ADVANCEMENT POSSIBILITIES: Dental Hygienists normally work for dentists with large practices or for a group of dentists. Opportunities for advancement to supervisory positions are possible for those employed in school systems or government services.

TRANSFER POSSIBILITIES: Dental Hygienists may transfer between private practices of dentists or groups of dentists and school systems or government services branches.

OCCUPATIONAL TITLES:

3157-110 DENTAL HYGIENIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	3	2	3	3	5	3	L4567	I	4	6	76	5Y

3157-B DENTAL HYGIENISTS, ASSISTANTS AND TECHNICIANS

WORK PERFORMED: This chapter includes occupations concerned with supportive work in the field of dentistry. Worker functions include: analyzing prescriptions or specifications to determine individual patient's requirements; precision working to close tolerances when fabricating dental appliances; manipulating tools and equipment to form, polish or finish appliances; comparing resultant products to specifications; supervising and co-ordinating the activities of a dental laboratory; and instructing groups or individuals in oral hygiene. Work activities include: preventing oral diseases by prophylactic treatments; making and repairing dentures, bite blocks, tooth bands, positioners and similar appliances; and assisting dentists during dental procedures.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow dentist's instructions when assisting in the care and treatment of patients; verbal ability to understand dental terminology; eye-hand-finger co-ordination and finger and manual dexterity to handle instruments, prepare filling materials and give emergency treatment to patients; near visual acuity and depth perception to read scales and use hand tools during preparation of filling material.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require eleven to twelve years of general education; and up to six months of full or part-time training at a vocational institute, or classes organized by local dentists; or six months to one year on-the-job training. Some provincial dental associations require successful completion of a test before an examining board to qualify for the diploma Dental Assistant.

ADVANCEMENT POSSIBILITIES: Because of the nature of the work, advancement is usually restricted to a matter of salary increases based on experience with the employer's practice.

TRANSFER POSSIBILITIES: Transfers are possible between employment with dental specialists or in school or hospital clinics.

OCCUPATIONAL TITLES:

3157-114 DENTAL ASSISTANT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	3	4	3	3	3	5	4	L4567	I	3	5	21	53Y

3157-D DENTAL HYGIENISTS, ASSISTANTS AND TECHNICIANS

WORK PERFORMED: This chapter includes occupations concerned with supportive work in the field of dentistry. Worker functions include: analyzing prescriptions or specifications to determine individual patient's requirements; precision working to close tolerances when fabricating dental appliances; manipulating tools and equipment to form, polish or finish appliances; comparing resultant products to specifications; supervising and co-ordinating the activities of a dental laboratory; and instructing groups or individuals on oral hygiene. Work activities include: preventing oral diseases by prophylactic treatments; making and repairing dentures, bite blocks, tooth bands, positioners and similar appliances; and assisting dentists during dental procedures.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply appropriate techniques for the fabrication and repair of dental appliances; spatial perception to visualize three-dimensional shape of dental appliances from prescriptions or specifications; form perception to examine finished work for conformance to specifications; eye-hand-finger co-ordination and finger and manual dexterity to skilfully use laboratory equipment and tools to fabricate dental appliances; colour discrimination to select and match shades of teeth and gums.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require ten to twelve years of general education; and a three-year course of full-time lectures and practical laboratory work in an institute of technology; or a four-year apprenticeship program under the direction of a recognized Dental Technician. Examinations for registration and licensing as Dental Technician is required in most provinces.

ADVANCEMENT POSSIBILITIES: Dental Technicians who have supervisory potential, leadership qualities and considerable experience may advance to positions as supervisors or proprietors. Opportunities exist for advancement in large laboratories with highly specialized production. Smaller laboratories provide exposure to a variety of procedures and the opportunities for advancement to 3157-134 MANAGING SUPERVISOR, DENTAL LABORATORY or to 5131-138 TECHNICAL SALESMAN, MEDICAL-DENTAL EQUIPMENT AND SUPPLIES.

TRANSFER POSSIBILITIES: Opportunities for transfer exist between dental laboratories which provide for opportunities for the specialization of techniques, or to those which provide the broad experience for future advancement.

OCCUPATIONAL TITLES:

3157-138	DENTAL TECHNICIAN, GENERAL
3157-142	DENTAL CERAMIST
3157-146	DENTAL TECHNICIAN, CROWN AND BRIDGE
3157-150	DENTAL TECHNICIAN, METAL
3157-154	ORTHODONTIC TECHNICIAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	3 4	$\underline{2}$	$\underline{2}$	4	$\underline{3}$	$\underline{2}$ $\underline{3}$	$\underline{3}$	5	$\underline{3}$ $\underline{2}$	L47	I	4	7	901	OY1

3157-E DENTAL HYGIENISTS, ASSISTANTS AND TECHNICIANS 681, 684

WORK PEFORMED: This chapter includes occupations concerned with supportive work in the field of dentistry. Worker functions include: analyzing prescriptions or specifications to determine individual patient's requirements; precision working to close tolerances when fabricating dental appliances; manipulating tools and equipment to form, polish or finish appliances; comparing resultant products to specifications; supervising and co-ordinating the activities of a dental laboratory; and instructing groups or individuals on oral hygiene. Work activities include: preventing oral diseases by prophylactic treatments; making and repairing dentures, bite blocks, tooth bands, positioners and similar appliances; and assisting dentists during dental procedures.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply appropriate techniques for the fabrication and repair of dental appliances: spatial perception to visualize three-dimensional shape of dental appliances from prescriptions or specifications; form perception to examine finished work for conformance to specifications; eye-hand-finger co-ordination and finger and manual dexterity to skilfully use laboratory equipment and tools to fabricate dental appliances.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: nine to ten years of general education; and three months to three years of on-the-job training depending on the complexity of the work.

ADVANCEMENT POSSIBILITIES: Opportunities for advancement exist for other dental-laboratory workers who obtain the training and experience to qualify as 3157-138 DENTAL TECHNICIAN, GENERAL or as registered Dental Technicians depending on the qualifications required.

TRANSFER POSSIBILITIES: Because of the highly specialized nature of the work, transfer possibilities are limited to occupations in the same unit group.

OCCUPATIONAL TITLES:

3157-158	SET-UP MAN, DENTURE
3157-162	FRAMEWORK FINISHER, DENTURES
3157-166	MOULDER, BENCH
3157-170	ORTHODONTIC-BAND MAKER
3157-174	CASTER AND MOULDER, DENTAL CERAMICS
3157-178	DENTURE PACKER
3157-182	PLASTERMAN, DENTURES
3157-186	BITE-BLOCK MAN
3157-190	DENTURE FINISHER
3157-194	DENTURE WAXER
3157-198	DENTURE WAXER, METAL FRAMEWORK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	3	3	5	4	S-L47	I	3	7-4	91	YO
	4			2	2	5					3						YO2

3311 - PAINTERS, SCULPTORS AND RELATED ARTISTS

061, 081, 281

WORK PERFORMED: This chapter includes occupations concerned with creating original artistic works in a personally interpreted manner, by painting, drawing, sculpturing, engraving, etching and printmaking. Worker functions include: analyzing and synthesizing conceptual data to develop artistic interpretations; and creating and executing artistic works by skilfully employing various media, techniques and work aids. Work activities include: selecting and using paints, pencils, pastels, ink or other media to create artistic compositions; shaping materials such as wood, stone, clay or metal to create three-dimensional art forms; and engraving or etching original designs on metal, wood or other materials for reproduction.

APTITUDES AND CAPACITIES: Painters, Sculptors and Related Artists require: learning ability and the intellectual capacity to understand and apply the theory and history of art to creatively express ideas, feelings and moods in artistic designs and arrangements, and the ability to apply the various techniques and artistic judgment to the production of original works; spatial perception to visualize and capture the relationships of all elements forming an artistic whole, and to represent three-dimensional objects on two-dimensional surfaces; form perception to perceive pertinent detail in objects and make visual discrimination in harmony of colour, shading and width and length of lines; eye-hand-finger co-ordination and finger dexterity in the use of small paint brushes, fine chisels and knives when working on paintings, etchings or sculpture; manual dexterity when painting large canvas surfaces or when cutting or shaping wood or stone to produce carvings or sculptures; colour discrimination to preceive similarities or differences in colours or in hues, recognize harmonious or contrasting colour combinations, and match colours accurately.

TRAINING AND ENTRY REQUIREMENTS: Painters, Sculptors and Related Artists require: secondary school graduation with emphasis on art and history; and a three year course in fine arts at a university; or a three year course in fine and applied arts at a college of art of community college; and considerable working experience depending upon the innate ability of the individual and the medium worked with.

ADVANCEMENT POSSIBILITIES: Advancement for Painters, Sculptors and Related Artists depends on demonstrated ability and is usually defined in terms of monetary achievment, gained from recognition.

TRANSFER POSSIBILITIES: Transfers for Painters, Sculptors and Related Artists possessing the necessary qualifications may be to teaching positions in community colleges, colleges of art and universities, for example, 2792-118, TEACHER, ART.

OCCUPATIONAL TITLES:

3311-110	ARTIST, PICTORIAL	3311-118	PRINTMAKER
3311-114	SCULPTOR	3311-122	CARVER, TOTEM POLE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	2	3	4	2	2	5	2	1	2	4	3
	3			1				2			1

PA	EC	GED	SVP	INTS.	TEMPS.
S-L3457	I-B6	4-3	8-7	806	X9

3313 - PRODUCT AND INTERIOR DESIGNERS 031, 051, 061, 081

WORK PERFORMED: This chapter includes occupations concerned with creating designs for industrial and commercial products, and designing and decorating interiors, stage settings, and exhibition displays by harmonizing aesthetic considerations with technical and other requirements. Worker functions include: conferring with customers, and production, design and sales personnel to obtain and discuss their suggestions; interpreting and synthesizing information regarding such factors as clients' needs and preferences, costs, production methods and technical specifications; and skilfully using drawing instruments, tools and work aids to draw designs and make patterns. Work activities include: selecting appropriate colours, decorative materials and accessories; and preparing specifications and instructions for production purposes.

APTITUDES AND CAPACITIES: learning ability to understand and apply principles and techniques of design and decoration, to evaluate information regarding new developments in materials and styles, to develop new ideas and aesthetic and practical solutions to meet customers' requirements and preferences, and to acquire the necessary academic and technical background; verbal ability to communicate clearly with people when presenting and discussing detailed information concerning proposed design of interiors, displays, sets or products; spatial perception to visualize final appearance of product to be made or interior to be decorated, to imagine harmonious arrangement of functional and decorative materials and accessories, and to sketch plans and designs accordingly; form perception to notice pertinent detail in objects, materials and pictorial or graphic designs, eye-hand-finger co-ordination and finger dexterity to work precisely with small objects such as draughting instruments, scissors and brushes, when making drawings, models, miniature sets and samples of products; manual dexterity and ability to reach, to make wrist, hand and arm movements with speed when drawing designs, patterns or lay-outs, and handling drawing instruments, materials and accessories; colour discrimination to perceive similarities or differences in shades and colours, and to recognize harmonious and contrasting colour combinations in selecting colour schemes to create attractive designs; near visual acuity to perform work requiring attention to detail when drawing designs to scale.

TRAINING AND ENTRY REQUIREMENTS: 11 to 12 years of general education; a 2 to 4 year specialized program in industrial, interior or fashion design usually given in a community college, a technical or trade school, or a school of design; or 1 to 3 years of on-the-job training under the supervision of a qualified designer. For Interior Designers, a 4 year university program leading to a bachelor's degree in interior design. For Crest Designers, 6 months to 1 year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Competent and imaginative workers may become chief of design sections in architectural or manufacturing firms, department stores or hotel chains, or the sole designer for a smaller organization. With management ability and knowledge of business practices, they may successfully operate their own enterprises.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations within this chapter or to various occupations requiring similar skills such as 2163-134 DRAUGHTSMAN, COMMERCIAL and 2165-114 ARCHITECTURAL TECHNOLOGIST, or as found in Chapter 3314 ADVERTISING AND ILLUSTRATING ARTISTS. Designers who deal with textile, fur and leather materials could also transfer to some patternmaking occupations in 8551 PATTERNMAKING, MARKING AND CUTTING OCCUPATIONS: TEXTILE, FUR AND LEATHER PRODUCTS. Designers who have academic background and certification, and an interest in teaching activities may transfer to 2791-126 VOCATIONAL TEACHER, TECHNICAL SUBJECTS and 2792-118 TEACHER, ART.

OCCUPATIONAL TITLES:

3313-110 EXHIBITION & DISPLAY DESIGNER
3313-114 INTERIOR DESIGNER & DECORATOR
3313-118 FURNITURE DESIGNER
3313-122 SET DESIGNER
3313-126 STAINED-GLASS ARTIST
3313-130 FUR DESIGNER
3313-134 GARMENT DESIGNER
3313-138 INDUSTRIAL PRODUCTS DESIGNER
3313-142 SHOE DESIGNER
3313-146 TEXTILE DESIGNER
3313-150 COMMERCIAL-DESIGN ARTIST
3313-154 PACKAGE DESIGNER
3313-158 PATTERY DESIGNER
3313-162 WOMEN'S FASHION DESIGNER
3313-166 DESIGNER, PAPER SECURITIES
3313-170 SUPERVISOR, DISPLAY
3313-174 EMBROIDERY DESIGNER
3313-178 HANDBAG DESIGNER
3313-182 SIGN DESIGNER
3313-186 CREST DESIGNER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	2	2	4	2	2	3	5	2	S-L4567	I	5-4	8-5	86	X9
		3			3		3	3			3						

3314-B ADVERTISING AND ILLUSTRATING ARTISTS 061, 081

WORK PERFORMED: This chapter includes occupations concerned with creating and executing illustrations, artistic designs, signs, cartoons and caricatures for use in books, magazines, newspapers, television commercials, animated motion pictures and for other purposes related to advertising, illustration, entertainment and the distribution of information. Worker functions include: analyzing proposals, sketches or specifications to reproduce commercial or industrial designs specified by client or employer; conferring with colleagues and clients; and skilfully using a variety of artists' brushes, pens, pencils and other art equipment. Work activities include: creating and executing cartoons, advertising layouts and other illustrations by sketching or painting; preparing scripts or story boards; and assembling three-dimensional models.

APTITUDES AND CAPACITIES: Advertising and Illustrating Artists require: learning ability to understand and apply the principles of art and design to create illustrations, layouts and cartoons for publications or motion pictures; verbal ability to communicate effectively with colleagues and clients and to understand and use appropriate technical terminology; spatial perception to comprehend forms in space, visualize and depict three-dimensional objects and arrangements on two-dimensional surfaces; form perception to prepare artistic designs, signs, cartoons and other illustrations; colour discrimination to recognize similarities or differences in colours, or in shades or other values of the same colour, and to make appropriate use of colour and combinations of colour to enhance posters, illustrations and paintings; near visual acuity for close-up work; eye-hand-finger co-ordination to make rapid precise movements while preparing sketches, layouts and other artwork; finger dexterity to rapidly manipulate small objects, such as artist's brushes, pens and pencils; manual dexterity to move the hands easily and skilfully.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: secondary school graduation; a two to four-year program in fine or applied arts at a college of art, or in applied or graphic arts at a community college or institute of applied arts and technology; one to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Some workers may advance to 3314-110 SUPERVISOR, ART. Advertising and Illustrating Artists may also advance to teaching positions in their specialty, such as 2733-114 SECONDARY-SCHOOL TEACHER, VOCATIONAL or 2791-114 VOCATIONAL TEACHER, APPLIED-ARTS SUBJECTS, provided they possess the necessary qualifications.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this cluster are normally limited within their field of specialization. Some workers in this cluster who have a creative flair and the necessary aptitudes may transfer to product design occupations, such as those in Chapter 3313, PRODUCT AND INTERIOR DESIGNERS.

OCCUPATIONAL TITLES:

3314-114	ANIMATOR
3314-118	COMMERCIAL ARTIST
3314-122	MEDICAL ILLUSTRATOR
3314-126	SCIENTIFIC ILLUSTRATOR
3314-130	BACKGROUND-AND-TITLE ARTIST
3314-134	CARTOONIST
3314-136	LAYOUT MAN
3314-140	CARTOON-BACKGROUND ARTIST
3314-146	LETTERING ARTIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{2}$	$\underline{3}$	3	$\underline{2}$	$\underline{2}$	4	$\underline{2}$	$\underline{2}$	$\underline{3}$	5	$\underline{2}$	S-L4567	I	5-4	7-6	869	X9Y0
		$\underline{2}$	4			3	$\underline{3}$	$\underline{3}$	$\underline{2}$		$\underline{3}$						

3315 A-B PHOTOGRAPHERS AND CAMERAMEN

WORK PERFORMED: This chapter includes occupations concerned with photographing people, events, scenes, materials and products using still, motion-picture and television cameras. Worker functions include: setting-up and operating cameras and equipment; synthesizing data to determine arrangement, technique or special treatment to be used concerning subject matter to be photographed; and co-ordinating the timing, location and sequence of photographic operations. Work activities include: studying set-up arrangement to conceive artistic or special effect; arranging and positioning subjects; selecting work aids for a particular photograph or scene; selecting and adjusting camera settings for shutter speed, distance, field or vision and depth of field; loading exposing and unloading film; and discussing photographic requirements with customers and assistants.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the principles, techniques and instructions associated with photography and moving-picture or television camera operation; spatial perception to observe the path of moving objects and to photograph this action with camera, and to visualize a three-dimensional representation of subjects on a two-dimensional print or film; form perception to perceive pertinent details in subject to be photographed, to visualize and utilize best arrangement and shade or light to effect optimum results; colour discrimination to observe similarities or differences in colours and utilize harmonious or contrasting combinations; physical capacity to perform light to medium work requiring the frequent lifting and carrying of cameras and equipment, or pushing dolly-mounted cameras, and standing or sitting for prolonged periods of time during filming of programs; capacity to reach for, handle and feel controls while operating cameras and associated equipment; capacity to talk or signal while giving instructions or exchanging information; capacity to hear instructions, or to make fine discriminations in sound while operating camera in conjunction with sound equipment; visual acuity, both near and far, to adjust camera equipment and to photograph distant scenes; capacity to work indoors or outdoors; eye-hand-finger co-ordination and finger dexterity to rapidly and accurately load, position, adjust and unload cameras, or to focus and adjust cameras while subject is moving; manual dexterity to move the hands easily and skilfully in any direction when setting up cameras and equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: secondary school graduation preferably with emphasis on physics and chemistry; and two to four years on on-the-job training and experience.

ADVANCEMENT POSSIBILITIES: Workers with supervisory potential may advance to occupations in Cluster A. Experienced workers with management ability and knowledge of business practices may successfully operate their own enterprises.

TRANSFER POSSIBILITIES: Cameramen may become proprietors of camera shops or salesmen of photographic equipment and supplies, such as 5135-166 SALESPERSON, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES. With limited amount of additional training, transfer is also possible to other specializations within the respective clusters.

OCCUPATIONAL TITLES:

3315-174 NEWS CAMERAMAN

3315-172 CAMERAMAN, MOTION-PICTURE

3315-178 TELEVISION CAMERAMAN

QUALIFICATIONS PROFILE:

APT:	C	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	2	2	4	3	3	3	4	3	L-M4567	I-B	5-4	7	96	90
	2									3							

3315A-C PHOTOGRAPHERS AND CAMERAMEN 052, 060, 062, 182

WORK PERFORMED: This chapter includes occupations concerned with photographing people, events, scenes, materials and products using still, motion-picture and television cameras. Worker functions include: setting-up and operating cameras and equipment; synthesizing data to determine arrangement, technique or special treatment to be used concerning subject matter to be photographed; and co-ordinating the timing, location and sequence of photographic operations. Work activities include: studying set-up arrangement to conceive artistic or special effect; arranging and positioning subjects; selecting work aids for a particular photograph or scene; selecting and adjusting camera settings for shutter speed, distance, field or vision and depth of field; loading exposing and unloading film; and discussing photographic requirements with customers and assistants.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the principles, techniques and instructions associated with photography and moving-picture or television camera operation; spatial perception to observe the path of moving objects and to photograph this action with camera, and to visualize a three-dimensional representation of subjects on a two-dimensional print or film; form perception to perceive pertinent details in subject to be photographed, to visualize and utilize best arrangement and shade or light to effect optimum results; colour discrimination to observe similarities or differences in colours and utilize harmonious or contrasting combinations; physical capacity to perform light to medium work requiring the frequent lifting and carrying of cameras and equipment, or pushing dolly-mounted cameras, and standing or sitting for prolonged periods of time during filming of programs; capacity to reach for, handle and feel controls while operating cameras and associated equipment; capacity to talk or signal while giving instructions or exchanging information; capacity to hear instructions, or to make fine discriminations in sound while operating camera in conjunction with sound equipment; visual acuity, both near and far, to adjust camera equipment and to photograph distant scenes; capacity to work indoors or outdoors; eye-hand-finger co-ordination and finger dexterity to rapidly and accurately load, position, adjust and unload cameras, or to focus and adjust cameras while subject is moving; manual dexterity to move the hands easily and skilfully in any direction when setting up cameras and equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: secondary school graduation preferably with emphasis on physics and chemistry; and a one to two year community college program in photographic arts; and one year or more of on-the-job training; or from two to four years of on-the-job training and experience.

ADVANCEMENT POSSIBILITIES: Workers with supervisory potential may advance to occupations in Cluster A. Experienced workers with management ability and knowledge of business practices may successfully operate their own enterprises.

TRANSFER POSSIBILITIES: Photographers and Cameramen may become proprietors of camera shops or salesmen of photographic equipment and supplies, such as 5135-166 SALESPERSON, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES. With limited amount of additional training, transfer is also possible to other specializations within the respective clusters.

OCCUPATIONAL TITLES:

3315-114 SCIENTIFIC PHOTOGRAPHER
3315-126 PORTRAIT PHOTOGRAPHER
3315-118 COMMERCIAL PHOTOGRAPHER
3315-110 PHOTOGRAPHER, GENERAL
3315-130 NEWS PHOTOGRAPHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	2	4	3	3	3	4	2	L4567	I-B	4	7	9680	X95
	2									5							

3330-B PRODUCERS AND DIRECTORS, PERFORMING AND AUDIOVISUAL ARTS 118, 128, 137, 164

WORK PERFORMED: This chapter includes occupations concerned with producing and directing theatrical performances, motion picture productions, and radio and television programs. Worker functions include: co-ordinating various elements of production to maintain schedules and ensure quality; negotiating with sponsors, writers and other staff members to formulate policies, select cast and resolve problems; directing and instructing cast and production personnel to achieve desired mood, interpretation and performance; and supervising activities of stage crews and technical staff. Work activities include: reviewing and approving scripts; auditioning and selecting performers; preparing production budgets and maintaining expenditures within budget limits; planning required technical facilities; directing rehearsals and criticizing performers until desired standard of performance is obtained; and editing visual aspects of motion picture films.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand the principles and techniques of communication and creative expression as applied to broadcasting, motion pictures and stage; to acquire necessary knowledge in specialized areas, such as art, dramatics, vocal and instrumental music, sports or public affairs; and the ability to plan, initiate and execute production activities with sound reason, judgment and understanding; verbal ability to communicate desired interpretation and detailed instructions effectively to people at various levels; spatial perception to communicate stage-set diagrams, determine layout, arrange lighting and sound to create desired effects, and direct movement of actions on stage; form perception to examine motion picture, stage, radio and television productions for artistic and technical quality including such elements as lighting, costumes and set designs; talking ability to accurately, loudly and quickly convey important directives; hearing ability and visual acuity to isolate and concentrate on specific sounds and visual details while exposed to a variety of audio and visual input, colour discrimination to detect slight differences in colours and to judge the properties of hue and texture in combinations of light and shade so as to produce the most aesthetic effect.

TRAINING AND ENTRY REQUIREMENTS: high school graduation, preferably at university entrance level; academic training in communications and theatre, radio and television arts at a community college, theatre, drama school or university, combined with workshop sessions lasting 2 to 4 years; 4 to 10 years of on-the-job training which includes experience in camera work, film editing, staging props, costuming, make-up, choreography, sound and lighting, timing and special effects.

ADVANCEMENT POSSIBILITIES: Advancement for talented, hard working and skilled workers is usually from small to large production centres. Workers who posses sound technical and business knowledge and leadership qualities may become Producers. Advancement for those working in the theatre is from STAGE MANAGER to DIRECTOR, STAGE; ART DIRECTOR or PRODUCER STAGE; for those working in motion pictures, radio and television advancement is from DIRECTOR, BROADCASTING and DIRECTOR, MOTION PICTURE to PROGRAM CO-ORDINATOR, BROADCASTING and PRODUCER, MOTION PICTURE. Some who possess the required managerial and administrative qualities may become producer-director, executive producer, 1147-166 MANAGER, RADIO STATION, 1147-170 MANAGER, TELEVISION STATION or 1130-142 GENERAL MANAGER, TRANSPORT AND COMMUNICATIONS.

TRANSFER POSSIBILITIES: Workers may transfer within the cluster to similar occupations in different types of productions. Those who are sales oriented may transfer to occupations related to publicity, marketing and selling, such as 1179-194 STATIONS-RELATIONS ADMINISTRATOR, 1179-146 PUBLIC-RELATIONS MAN, 1179-154 SALES-PROMOTION ADMINSTRATOR, 1137-110 MANAGER, ADVERTISING, 5174-122 SALESMAN, RADIO OR TELEVISION TIME or consultant in communications to corporations and governmental agencies. Some may become production assistants or program planners in larger centre. Workers who possess the necessary qualifications and interests may become writers or teachers. See 3353-122 SCRIPT WRITER, 3353-114 EDITOR, CONTINUITY AND SCRIPT and 2792-122 TEACHER, DRAMATIC ART.

OCCUPATIONAL TITLES:

3330-150 DIRECTOR, MOTION PICTURE
3330-154 MUSICAL DIRECTOR
3330-158 DIRECTOR, BROADCASTING
3330-162 DIRECTOR, STAGE
3330-166 STAGE MANAGER
3330-170 ART DIRECTOR
3330-174 FILM EDITOR
3330-178 RECORDING DIRECTOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{2}$	$\underline{2}$	3	$\underline{3}$	$\underline{2}$	3	4	4	4	5	$\underline{3}$	S-L567	I-B	6-4	8-7	865	459X91
			4	$\underline{2}$	$\underline{3}$	4					5	S-L4567					

3332A - CONDUCTORS AND INSTRUMENTALISTS

021, 041, 141

WORK PERFORMED: This chapter includes occupations concerned with conducting instrumental groups and playing musical instruments. Worker functions include: synthesizing elements of a musical composition; co-ordinating each instrumentalist's role; instructing musicians on rendition require: and diverting audiences by playing musical instruments either as a soloist or member of a band or orchestra. Work activities include: auditioning and selecting instrumentalists; determining music to be played; studying score; and conducting and playing in rehearsals and performances.

APTITUDES AND CAPACITIES: Orchestra Conductors require: learning ability to acquire an extensive background in music including a knowledge of the technical capabilities of instruments, and to understand and apply musical theory and techniques of conducting to express meaning or feeling in a musical entity; verbal ability to understand musical terminology and to communicate ideas and desired effects to members of band or orchestra, either individually or collectively; form perception to recognize musical notes and symbols, and to read complete musical scores; eye-hand co-ordination to move baton or gesture when directing musicians, according to the musical score; ability to extend hands and arms when conducting; auditory discrimination to preceive slight differences in pitch and harmony. Instrumentalists require: learning ability to acquire an extensive background in music, and to understand and apply musical theory and the techniques of playing an instrument; verbal ability to understand musical terminology and to communicate perception to recognize musical notes and symbols; eye-hand-finger co-ordination, finger dexterity and manual dexterity to manipulate instrument parts, such as keys, bow, valves or strings rapidly and accurately to produce notes according to the music being read; eye-hand-foot co-ordination, depending on instrument played, to depress pedals, or to match while playing instrument; ability to extend hands and arms when playing an instrument; auditory discrimination to perceive slight differences in patch and harmony of sound.

TRAINING AND ETNRY REQUIREMENTS: Conductors and Instrumentalists normally require: secondary school graduation perferably with emphasis on the theory and practice of music; a three to four-year program at a conservatory of music or equivalent; and continued individual study practice under guidance of a tutor, and usually extending over eight years or more, depending on ability.

ADVANCEMENT POSSIBILITIES: Advancement for instrumentalists may be gradually, from a minor role to first player, or from a smaller orchestra to a larger group. Advancement may also be from instrumentalist to 3332-110 ORCHESTRA CONDUCTOR, for those with the necessary qualifications. Conductors may advance to larger orchestras or may be appointed conductor of more than one orchestra. Some conductors may also become musical directors.

TRANSFER POSSIBILITIES: Transfer may be to other orchestras or bands or to 2792-114 MUSIC TEACHER, INSTRUMENTAL which requires teacher certification for those who wish to work in education. Transfer may also be to related work such as 3332-114 COMPOSER, 3332-118 ARRANGER, 3332-122 ORCHESTRATOR or 332-142 copyist, for those who possess the necessary qualifications.

OCCUPATIONAL TITLES:

3332-110 ORCHESTRA CONDUCTOR
3332-128 CARILLONNEUR
3332-130 MUSICIAN, INSTRUMENTAL

QUALIFICATIONS PROFILES:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GEC	SVP	INTS.	TEMPS.
A	$\underline{1}$	$\underline{2}$	3	3	$\underline{3}$	2	$\underline{2}$	3	3	4	5	L456	I	6	9	856	459X
B	$\underline{2}$	$\underline{2}$	3	4	$\underline{3}$	3	$\underline{2}$	$\underline{1}$ 4	$\underline{2}$	3 4	5	L4567	I-B5	5	8	856	9X

3332B-B CHOIRMASTERS AND SINGERS

WORK PERFORMED: This chapter includes occupations concerned with conducting vocal groups, and singing classical, operatic, church or popular music. Worker functions include: synthesizing knowledge of musical and vocal characteristics to achieve desired performance; co-ordinating voice with others and with musical accompaniment; instructing singers in delivery; and entertaining audiences by singing as a soloist or member of a group or choir. Work activities include: auditioning and selecting singers; determining music and parts for individual singers; studying words and music; and directing choirs at rehearsals and performances.

APTITUDES AND CAPACITIES: learning ability to acquire a broad background in music, and to understand and apply musical theory and singing techniques; verbal ability to read lyrics, understand musical terminology, express music in a foreign language, and communicate effectively when working with other musicians; form perception to recognize musical notes and symbols; adultory discrimination to perceive slight differences in tonal and harmonic balance.

TRAINING AND ENTRY REQUIREMENTS: secondary school graduation preferably with emphasis on the theory and practice of music; a three of four-year program at a conservatory of music or equivalent; or individual study and practice under guidance of a tutor, and usually extending over four years or more, depending on ability.

ADVANCEMENT POSSIBILITIES: Advancement for singers may be from a minor role in a vocal group to a position as soloist or lead singer; singers and choirmasters may advance from smaller to larger groups. Singers may advance to the position of choirmaster if they possess leadership ability and other necessary qualifications.

TRANSFER POSSIBILITIES: Transfer may be from singing a particular kind of music to singing another, such as operatic or popular music, or to working in different specializations, such as night clubs, recording, television, motion pictures or commercials. Singers may also transfer to 2792-110 MUSIC TEACHER, VOCAL and tutor privately or, if they possess the required qualifications, teach in educational institutions. Some singers, for example those who perform in musical comedies, may become 3335-110 ACTOR or 3335-122 COMEDIAN if they have the required training and background

OCCUPATIONAL TITLES:

3332-134 CONCERT SINGER	3332-138 POPULAR SINGER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2 3	2 3	4	5	3	3	4	4	4	5	5	L456	I	5-4	8-7	865	X9

3332C-A COMPOSERS, ARRANGERS AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with composing, adapting, arranging, orchestrating and copying music. Worker functions include: synthesizing knowledge of music and instumentation, and original ideas to write musical scores; and arranging parts of individual performers from musical scores. Work activities include: writing symphony, opera, film, play and popular music scores; transcribing musical compositions for a particular arrangement; transposing music for another musical instrument; and copying musical parts for individual performers.

APTITUDES AND CAPACITIES: learning ability to acquire an extensive background in music, including a knowledge of the technical capabilities of instruments, and to understand and apply musical theory and the techniques involved in arranging, orchestrating, composing or copying; verbal ability to understand musical terminology to write words to accompany music and to communicate effectively with other musicians; form perception to recognize musical notes and symbols and read musical scores; auditory discrimination to compose, arrange and orchestrate music.

TRAINING AND ENTRY REQUIREMENTS: secondary school graduation preferably with emphasis on the theory and practice of music; a three to four year program at a conservatory of music or equivalent; and individual study and practice under the guidance of a tutor, usually extending over a period of eight years or more, depending on ability.

ADVANCEMENT POSSIBILITIES: Advancement may be to 3332-110 ORCHESTRA CONDUCTOR. For those composers who possess management capacilities and business potential, it may be possible to form an independent recording company.

TRANSFER POSSIBILITIES: Transfer may occur between occupations within this cluster or to 3332-130 MUSICIAN, INSTRUMENTAL. Transfer may also be to positions for teaching music either privately, or in an academic institute, if persons possess suitable qualifications.

OCCUPATIONAL TITLES:

3332-114	COMPOSER	3332-122	ORCHESTRATOR
3332-118	ARRANGER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	1	2	3	3	2	3	3	3	3	5	5	S4567	I	6	9-8	86	9X
		1															

3333-A CHOREOGRAPHERS AND DANCERS

WORK PERFORMED: This chapter includes occupations concerned with creating, interpreting, and performing dances. Worker functions include: analyzing and synthesizing music and movement of the body to express own interpretation of dances or to create original dances for others; instructing dancers; and entertaining audiences through dance performances. Work activities include: conducting rehearsals and demonstrating body movements; exercising and rehearsing; and performing dances as a soloist, with a partner or as a member of a dancing group.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand, interpret and apply the principles of body movement, dance forms and production techniques; verbal ability to communicate ideas and instructions to dancers and to understand and/or use dance notations and terminology; spatial perception to visualize body movements in relation to space, proper sequence and time, and to relate own position to that of others in ensemble dance performances; eye-hand-foot co-ordination to make precise movements rhythmically or gracefully in dance patterns, in response to visual or audible stimuli; physical capacity and stamina to perform medium to heavy work, which may occasionally require the lifting of other dancers, during long and intense rehearsals and performances; agility to demonstrate or assume difficult yet graceful body positions requiring the balancing of self or partner, and assuming postures requiring stooping, kneeling, crouching, crawling, leaping and reaching in harmoniously co-ordinated patterns that express moods and characterizations; good visual acuity to see details in posture assumed by one or more dancers to appraise or stimulate their performance, and depth perception and accommodation to judge distance and space relationships.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: a minimum of twelve years of general education; four to ten years of vocational preparation usually acquired through a combination of dancing experience, assisting a qualified choreographer, and instruction in dance composition, dance form, stage techniques and other related subjects. Courses in these subjects are provided in dance conservatories, fine arts departments of universities, and other schools of the performing arts.

ADVANCEMENT POSSIBILITIES: Workers possessing the necessary academic qualifications, training and experience, may advance to teaching positions in a ballet company or dance department of a university, community college or other school. See 2792-126 TEACHER, DANCING.

TRANSFER POSSIBILITIES: Transfer possibilities are limited because of the specialized nature of work performed.

OCCUPATIONAL TITLES:

3333-110 CHOREOGRAPHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	2	3	4	3	4	4	2	5	M234567	I	5	8	685	X9451

3333-B CHOREOGRAPHERS AND DANCERS

WORK PERFORMED: This chapter includes occupations concerned with creating, interpreting, and performing dances. Worker functions include: analyzing and synthesizing music and movement of the body to express own interpretations of dances or to create original dances for others; instructing dancers; and entertaining audiences through dance performances. Work activities include: conducting rehearsals and demonstrating body movements; exercising and rehearsing; and performing dances as a soloist, with a partner or as a member of a dancing group.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand, interpret and apply the principles of body movement, dance forms and production techniques; verbal ability to communicate ideas and instructions to dancers and to understand and/or use dance notations and terminology; spatial perception to visualize body movements in relation to space, proper sequence and time, and to relate own position to that of others in ensemble dance performances; eye-hand-foot co-ordination to make precise movements rhythmically or gracefully in dance patterns, in response to visual or audible stimuli; physical capacity and stamina to perform medium to heavy work, which may occastionally require the lifting of other dancers, during long and intense rehearsals and performances; agility to demonstrate or assume difficult yet graceful body positions requiring the balancing of self or partner, and assuming postures requiring stooping, kneeling, crouching, crawling, leaping and reaching in harmoniously co-ordinated patterns that express moods and characterizations; good visual acuity to see details in posture assumed by one or more dancers to appraise or stimulate their performance, and depth perception and accommodation to judge distance and space relationships.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require twelve years of general education; training of from four to eight years for dancers of classical ballet only; and two to four years of training for dancers of modern, musical comedy, exhibition, and ethnic dances. Depending on the particular style, training is usually provided by schools of dancing, ballet groups, conservatories, or other schools of the performing arts.

ADVANCEMENT POSSIBILITIES: Workers possessing considerable knowledge of music theory and composition, stage technique and art and instructional capability may advance to the occupation of choreographer. Also workers processing the necessary academic qualifications, training and experience, may advance to teaching positions in a ballet company or dance department of a university, community college or other school. See 2792-126 TEACHER, DANCING.

TRANSFER POSSIBILITIES: Workers who possess the necessary skills may transfer to related occupations, such as 3139-114 RECREATIONAL THERAPIST, 3335-110 ACTOR, AND 6143-110 MAKE-UP ARTIST.

OCCUPATIONAL TITLES:

3333-114 DANCER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	3	3	2	3	4	2	3	3	1	5	M23457	I	4	7	685	XY9

3335 - ACTORS

044, 048

WORK PERFORMED: This chapter includes occupations concerned with performing in dramatic productions, pantomines, comedy routines, impersonation or vertriloquial acts for stage, television, radio, motion pictures or other audiences. Work functions include: developing interpretations and presentations concerning the theme of the production or routine, the type of character impersonation, and the purpose of the role or act to be portrayed; entertaining audiences, speaking and signaling to express character verbally or through movement and gesture. Work activities include: studying scripts, story lines, character sketches, mannerisms or voice intonations, memorizing lines and cues; auditioning and rehearsing for a role or act; and attending wardrobe fittings and make-up sessions.

APTITUDES AND CAPACITIES: Actors normally require: learning ability to understand and apply the basic principles and techniques of creative expression, to acquire knowledge and background in subject matter area, and to use judgment in adapting to various roles, popularity trends, styles of acting or performing, or mood of audience; verbal ability, a facility with language and a capability to communicate expression of character and emotion effectively to audiences; eye-hand-finger co-ordination and finger and manual dexterity in cases where props or movement are important to the performance, as for 3335-118 VENTRILOQUIST, when manipulating dummies or hand puppets; eye-hand-foot co-ordination to effectively control body movements and gestures when interpreting roles, especially important for 3335-114 MIME; good physical stamina to work long hours and to accept the disciplines of rigorous rehearsal; talking ability and a good projective speaking voice to enunciate clearly and correctly; hearing to preceive discriminations in sound and to appreciate the variety of meanings and feelings conveyed by the voice.

TRAINING AND ENTRY REQUIREMENTS: Actors normally require: secondary school graduation perferably at university entrance level; academic training in the performing arts leading to a certificate, diploma or degree from a community college, university, theatre or drama school, combined with intensive practical training lasting from one up to four years; for other workers in this chapter there are no established training and entry requirements.

ADVANCEMENT POSSIBILITIES: Advancement may be from back stage work to extra and bit parts, and from character to lead roles in radio, theatre, television and motion picture productions. Advancement may also be to stage direction and managing occupations, as found in Chapter 3330 PRODUCERS AND DIRECTORS, PERFORMING AND AUDIOVISUAL ARTS. In addition, those who possess the necessary experience may advance to 2792-122 TEACHER, DRAMATIC ART in a theatre school, university or community college.

TRANSFER POSSIBILITIES: Transfer may be between occupations within this chapter and also to occupations concerned with broadcasting or administering business affairs of entertainers and theatrical companies, such as 3337-114 ANNOUNCER, 3337-122 MASTER OF CEREMONIES and 1179-118 AGENT. Transfer is possible to occupations concerned with providing production support services for stage, radio, television or motion picture, such as 3339-126 PRODUCTION MAN and 3339-130 SCRIPT ASSISTANT. Transfer possibilities also exist to occupations concerned with performing mystifying or other acts to entertain audiences, such as 3332-138 POPULAR SINGER, 3339-166 MAGICIAN or 3339-170 PUPPETEER provided they possess the necessary qualifications.

OCCUPATIONAL TITLES:

3335-110	ACTOR
3335-114	MIME
3335-118	VENTRILOQUIST
3335-122	COMEDIAN
3335-126	IMPERSONATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2 3	4	3 4	4 3	4	4 3	4 3	4 3	4 5 2	5	L456	I-B	5-4	7-6	685	X951 XY51

3337 - RADIO AND TELEVISION ANNOUNCERS

134, 144, 347, 348

WORK PERFORMED: This chapter includes occupations concerned with announcing radio and television programs. Worker functions include: speaking during broadcasts to inform, educate or entertain audiences; compiling, collating and appraising information on people and events, and preparing scripts or news reprots; and co-ordinating time and sequence of broadcasting operations to ensure adherence to program schedule. Work activities include: identifying station using call letters; cueing control room to execute specific actions; operating control board or sound equipment; conducting live or taped interviews, or acting as master of ceremonies for certain programs; reading prepared news bulletins, advertisements and special announcements; observing, describing and commenting on sports events or events of unusual interest; selecting and presenting programs of recorded music; and making public-address announcements.

APTITUDES AND CAPACITIES: learning ability to understand and apply principles and techniques of communication arts, to acquire a broad cultural background, an awareness of current issues and extensive knowledge in subject area assigned; and to use judgment when selecting broadcast materials, formulating questions and making comments; verbal ability to quickly and accurately comprehend ideas expressed in written medium in order to read news flashes, advertisements or other types of script with proper emphasis and inflection; and to communicate in a concise, well organized, and interesting manner when acting as master of ceremonies or when giving a description of public meetings and sports events; good physical stamina and mental energy to work long hours in a medium which constantly requires poise, wit, charm, spontaneity and adaptability in meeting the demands of scheduled programming; ability to make swift and accurate hand, arm and finger movements when operating control board and sound or recording equipment; good hearing to be able to receive detailed information through oral communications or sound cues; clarity of vision to perceive detail when describing events.

TRAINING AND ENTRY REQUIREMENTS: secondary school graduation preferably at the university entrance level; program of studies in broadcasting or communciation arts at an institute of technology, community college or university covering speech techniques, voice development, timing, sound and video control, production and direction combined with broadcasting training; and a period of from one to four years practical experience; for 3337-130 DISK JOCKEY a period of six months to one year on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for those with acquired experience and demonstrated ability may be from announcer-trainee in a small broadcasting station to announcer and chief announcer in a larger station. An announcer may also advance to being assigned a regular program as a disc jockey, sportscaster or other specialist. Some careers lead from announcing to stage direction or managing occupations, such as those found in Chapter 3330 PRODUCERS AND DIRECTORS, PERFORMING AND AUDIOVISUAL ARTS. Some announcers who have the required training, talent and skill may advance to occupations in other phases of broadcasting work, such as those found in Chapter 3353 WRITERS AND EDITORS: RADIO, TELEVISION, THEATRE AND MOTION PICTURES or become performers, such as 3335-110 ACTOR, 3335-122 COMEDIAN or 3332-138 POPULAR SINGER.

TRANSFER POSSIBILITIES: Transfer may be between occupations within this chapter, and also to occupations concerned with providing support services for stage, radio and television, such as 3339-126 PRODUCTION MAN, 3339-130 SCRIPT ASSISTANT and 5174-122 SALESMAN, RADIO OR TELEVISION TIME. Some announcers transfer to advertising or public relations agencies or to other businesses that service the broadcasting industry. Announcers possessing suitable academic qualifications may transfer to teaching radio and television arts. See 2791-114 VOCATIONAL TEACHER, APPLIED-ARTS SUBJECTS.

OCCUPATIONAL TITLES:

3337-110 ANNOUNCER-PRODUCER INTERNATIONAL SERVICE
3337-114 ANNOUNCER
3337-118 SPORTS ANNOUNCER
3337-122 MASTER OF CEREMONIES
3337-126 PUBLIC-ADDRESS ANNOUNCER
3337-130 DISK JOCKEY

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	4	4	3	4	4	4	5	5	L4567	B	5-4	7-5	65	591
	3		4	3		4											

3351-A WRITERS AND EDITORS, PUBLICATION

018, 038

WORK PERFORMED: This chapter includes occupations concerned with the preparation of written and pictorial material for publication in newspapers, books, magazines, technical manuals, trade journals and other publications. Worker functions include: analyzing and synthesizing data to write material for publication, or to examine editorial copy for clarity, conciseness and adherence to publication policy; supervising the activities of staff; interviewing individuals to obtain information about, and to verify stories of newsworthy events, or to obtain comments and opinions. Work activities include: conducting research into subject matter; planning and writing material; selecting, editing and rewriting texts; participating in press conferences; and reporting on special events.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply the principles and techniques of writing, editing, reporting and interviewing for publication purposes and ability to exercise sound judgment; verbal ability to understand words and to use them effectively, both orally and in writing; clerical perception to discern pertinent detail in narrative or tabular material as in proofreading.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: secondary school graduation preferably at university entrance level; a two to four year university program in arts, journalism, literature or languages. Graduate degrees are generally required for more responsible positions; a combination of on-the-job training and related experience varying from one to six years, depending on the occupation.

ADVANCEMENT POSSIBILITIES: Workers who have acquired considerable experience in planning, organizing and directing relevant activities may advance to managerial positions in publishing establishments; for example, 1149-110 MANAGER, NEWSPAPER, and 1149-114 MANAGER, SCIENTIFIC, TECHNICAL AND OTHER PERIODICAL PUBLICATIONS.

TRANSFER POSSIBILITIES: Workers who possess the necessary knowledge and skills may transfer to other occupations within this chapter. In addition, transfer opportunities may exist in other fields employing writers and editors; for example, Chapter 3353, WRITERS AND EDITORS: RADIO, TELEVISION, THEATRE AND MOTION PICTURES, and Group 3359, OCCUPATIONS IN WRITING, N.E.C. For those with suitable qualifications, transfer may also be possble to 2791-114 VOCATIONAL TEACHER, APPLIED-ARTS SUBJECTS. Some may also transfer to political, governmental or public relations positions, if they possess the required qualifications.

OCCUPATIONAL TITLES:

3351-110	EDITOR, BOOK
3351-114	EDITOR, ADVERTISING
3351-118	EDITOR, CITY
3351-122	EDITOR, EDITORIAL PAGE
3351-126	EDITOR, FINANCIAL
3351-130	EDITOR, MAGAZINE
3351-138	EDITOR, TECHNICAL PUBLICATION
3351-142	EDITOR, TRADE OR TECHNICAL JOURNAL
3351-150	EDITOR, SPORTS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	1	3	3	3	3	4	4	4	5	5	S567	I-B	5	8-7	625	4597
				4	4						4						
											3						

3351-B WRITERS AND EDITORS, PUBLICATION 038, 068, 088, 268

WORK PERFORMED: This chapter includes occupations concerned with the preparation of written and pictorial material for publication in newspapers, books, magazines, technical manuals, trade journals and other publications. Worker functions include: analyzing and synthesizing data to write material for publication, or to examine editorial copy for clarity, conciseness and adherence to publication policy; supervising the activities of staff; interviewing individuals to obtain information about, and to verify stories of newsworthy events, or to obtain comments and opinions. Work activities include: conducting research into subject matter; planning and writing material; selecting, editing and rewriting texts; participating in press conferences; and reporting on special events.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply the principles and techniques of writing, editing, reporting and interviewing for publication purposes and ability to exercise sound judgment; verbal ability to understand words and to use them effectively, both orally and in writing; clerical perception to discern pertinent detail in narrative or tabular material as in proofreading.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: secondary school graduation preferably at university entrance level; a two to four year university program in arts, journalism, literature or languages. Graduate degrees are generally required for more responsible positions; a combination of on-the-job training and related experience varying from one to six years, depending on the occupation.

ADVANCEMENT POSSIBILITIES: Workers may advance to occupations in Cluster A provided they possess the necessary skills and experience.

TRANSFER POSSIBILITIES: Workers who possess the necessary knowledge and skills may transfer to other occupations within this chapter. In addition, transfer opportunities may exist in other fields employing writers and editors; for example, Chapter 3353, WRITERS AND EDITORS: RADIO, TELEVISION, THEATRE AND MOTION PICTURES, and Group 3359, OCCUPATIONS IN WRITING, N.E.C. For those with suitable qualifications, transfer may also be possible to 2791-114 VOCATIONAL TEACHER, APPLIED-ARTS SUBJECTS. Some may also transfer to political, governmental or public relations positions, if they possess the required qualifications.

OCCUPATIONAL TITLES:

3351-134	EDITOR, NEWS
3351-146	LEXICOGRAPHER
3351-150	CRITIC
3351-154	LITERARY WRITER
3351-162	ADVERTISING COPYWRITER
3351-166	COLUMNIST
3351-170	EDITORIAL WRITER
3351-174	REPORTER
3351-178	TECHNICAL WRITER
3351-182	REWRITE MAN
3351-186	EDITOR, TELECOMMUNICATIONS
3351-190	EDITOR, COPY
3351-194	EDITORIAL ASSISTANT
3351-198	EDITOR, SPECIAL FEATURES
3351-202	DESKMAN, SPORTS
3351-206	EDITOR, MAKE-UP
3351-210	EDITOR, PICTURE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	1	3	4	4	3	4	4	4	5	5	S567	I-B	5-4	8-6	68	9YX7
		2	4	3	3						4						

3353-A WRITERS AND EDITORS: RADIO, TELEVISION, THEATRE AND MOTION PICTURES

WORK PERFORMED: This chapter includes occupations concerned with selecting, interpreting and editing news or other material for information or entertainment through radio or television broadcasting, and writing and editing scripts for sketches, motion pictures, stage presentations, advertising and broadcasting. Worker functions include: synthesizing data obtained from film, video tape, news items, scripts, stories and commentaries to plan, prepare, organize and write for broadcasting, theatrical or cinematographic purposes; reviewing scripts to ensure conformance to standards of good expression; supervising staff activities; and interviewing individuals to obtain newsworthy information. Work activities include: researching subject matter; evaluating and selecting news items; appraising material for validity, quality and suitability; editing and revising material; and determining format and content of news, public affairs and special events programs.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the principles and techniques of writing, editing, reporting and interviewing for broadcasting, cinema or the theatre and the related technical implications; verbal ability to understand words and associated ideas and to use them effectively; both orally and in writing; clerical perception to discern pertinent detail when reviewing scripts, news and other narrative material.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: secondary school graduation preferably at the university entrance level; two to four years of training in radio and television arts, journalism, or literature at a college or university; for those who specialize in a particular field of news reporting, additional training in fields such as political science or economics is required; a combination of on-the-job training and related experience, varying from one to six years, depending on the occupation.

ADVANCEMENT POSSIBILITIES: Advancement may be to progressively more responsible occupations in other clusters within this chapter. Workers who have acquired a wide background in broadcasting and have demonstrated administrative ability may advance to executive positions in radio, television, theatre and cinematography, such as 1147-174 REGIONAL MANAGER, TELECOMMUNICATIONS SYSTEM or 1147-170 MANAGER, TELEVISION STATION or 1147-166 MANAGER RADIO STATION and to some occupations in Chapter 3330, PRODUCERS AND DIRECTORS, PERFORMING AND AUDIOVISUAL ARTS.

TRANSFER POSSIBILITIES: Transfers may be to occupations in Chapter 3351, WRITERS AND EDITORS, PUBLICATION or Group 3359, OCCUPATIONS IN WRITING, N.E.C.; or occupations such as 3337-114 ANNOUNCER or 1179-194 STATIONS-RELATIONS ADMINISTRATOR; or to occupations in public relations or teaching if they possess the necessary qualifications.

OCCUPATIONAL TITLES:

3353-110 EDITOR, NEWS, SPECIAL EVENTS AND PUBLIC AFFAIRS
3353-114 EDITOR, CONTINUTY AND SCRIPT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	1	3	4	4	3	4	4	4	5	5	S567	I	5	8	625	4579

3353-B WRITERS AND EDITORS: RADIO, TELEVISION, THEATRE AND MOTION PICTURE 068, 088

WORK PERFORMED: This chapter includes occupations concerned with selecting, interpreting and editing news or other material for information or entertainment through radio or television broadcasting, and writing and editing scripts for sketches, motion pictures, stage presentations, advertising and broadcasting. Worker functions include: synthesizing data obtained from film, video tape, news items, scripts, stories and commentaries to plan, prepare, organize and write for broadcasting, theatrical or cinematographic purposes; reviewing scripts to ensure conformance to standards of good expression; supervising staff activities; and interviewing individuals to obtain newsworthy information. Work activities include: researching subject matter; evaluating and selecting news items; appraising material for validity, quality and suitability; editing and revising material; and determining format and content of news, public affairs and special events programs.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the principles and techniques of writing, editing, reporting and interviewing for broadcasting, cinema or the theatre and the related technical implications; verbal ability to understand words and associated ideas and to use them effectively; both orally and in writing; clerical perception to discern pertinent detail when reviewing scripts, news and other narrative material.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: secondary school graduation preferably at the university entrance level; two to four years of training in radio and television arts, journalism, or literature at a college or university; for those who specialize in a particular field of news reporting, additional training in fields such as political science or economics is required; a combination of on-the-job training and related experience, varying from one to six years, depending on the occupation.

ADVANCEMENT POSSIBILITIES: Advancement may be to progressively more responsible occupations in other clusters within this chapter.

TRANSFER POSSIBILITIES: Transfers may be to occupations in Chapter 3351, WRITERS AND EDITORS, PUBLICATION or Group 3359, OCCUPATIONS IN WRITING, N.E.C.; or occupations such as 3337-114 ANNOUNCER or 1179-194 STATIONS-RELATIONS ADMINISTRATOR; or to occupations in public relations or teaching if they possess the necessary qualifications.

OCCUPATIONAL TITLES:

3353-118	NEWS ANALYST, BROADCASTING
3353-122	SCRIPT WRITER
3353-126	WRITER, NEWS OR SCRIPT, INTERNATIONAL BROADCASTING

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	1	4 3	4	4	3	4	4	4	5	5	S56	I-B	5	8-7	68	79X5

268, 288

3355 - TRANSLATORS AND INTERPRETERS

WORK PERFORMED: This chapter includes occupations concerned with translating and interpreting oral or written statements from one language to another. Work functions include: analyzing the meaning, theme and style of written and spoken language; and delivering interpreted statements. Work activities include: reading and studying texts; consulting dictionaries and other reference sources; writing translations; and listening to delivery of one language and providing simultaneous or consecutive interpretation in another.

APTITUDES AND CAPACITIES: Translators and Interpreters require: learning ability to understand and use a wide range of complex or abstract cultural, political, commercial, technical or scientific concepts or terms expressed in two or more languages, and to research and keep up to date on vocabulary usage and new teminology; verbal ability to understand meanings of words and ideas associated with them, and to use them effectively, in two or more languages; clerical perception to discern pertinent detail in text.

TRAINING AND ENTRY REQUIREMENTS: Translators and Interpreters normally require: secondary school graduation perferably at the university entrance level; a three-year university program leading to a bachelor's degree in translation, with additional years of study for specialization; or a three to four-year program of part time or evening study at a university, plus two to three years of on-the-job training. For translators of scientific or technical material, additional studies are required in the field of specialization such as law, engineering or sciences.

ADVANCEMENT POSSIBILITIES: Advancement may be from translation work to interpreting for those possessing the required technical and linguistic knowledge and personal qualifications. Translators and Interpreters who have supervisory ability and leadership skills may advance to senior positions within their organization.

TRANSFER POSSIBILITIES: Workers may transfer between occupations within the chapter, or to occupations in Minor Group 335, OCCUPATIONS IN WRITING, or to TEACHER, MODERN LANGUAGES under 2791-199, Other Community College and Vocational Teachers for those with the specified qualifications. Translators and Interpreters, if they possess the necessary qualifications may also apply their knowledge of languages to fields, such as broadcasting, see 3337-110 ANNOUNCER-PRODUCER INTERNATIONAL SERVICE, or to government, e.g., foreign service or, international, trade, cultural, religious and relief organizations, and to travel, import-export companies and banks. It is also possible to work on a free-lance basis.

OCCUPATIONAL TITLES:

3355-110	INTERPRETER	3355-118	FOREIGN-BROADCAST TRANSLATOR
3355-114	TRANSLATOR, SCIENTIFIC DOCUMENTS	3355-122	TRANSLATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	1	4	4	4	3	4	4	4	5	5	S456	I	5	7-6	6	90Y

3710-A COACHES, TRAINERS, INSTRUCTORS AND MANAGERS, SPORT AND RECREATION

WORK PERFORMED: This chapter includes occupations concerned with administering and directing athletic programs; managing and coaching teams and individuals; and training and instructing athletes and other individuals in competitive and recreational sport. Worker functions include: co-ordinating team effort, or directing the entire athletic activities of an establishment such as college, university or professional team; analyzing the athletic skills and abilities of individuals; negotiating with athletes or their managers to obtain, sell or trade the services of sports personnel and arrange their contracts, salaries and working agreements; and instructing, teaching and coaching athletes to improve their physical fitness and individual capabilities for particupation in sports. Work activities include: explaining or demonstrating to athletes the fundamentals, rules, techniques and exercises required for a particular sport; observing opposition's strategy and developing counter-play patterns; conducting drills and practices; and recommending changes in personnel.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply the principles of management, physical education and the rules and regulations concerning athletic sports; verbal ability to understand and use sports terminology and to communicate effectively both orally and in writing when directing the affairs of a sport organization; numerical ability to prepare budget estimates, negotiate contracts, and control ticket sales and other financial activities.

TRAINING AND ENTRY REQUIREMENTS: For 3710-110 DIRECTOR, ATHLETICS, a Bachelor degree in Physical Education and a minimum of two years as physical education instructor. For 3710-114 MANAGER, PROFESSIONAL ATHLETIC TEAM, several years experience as a coach, or as a manager of an amateur team. For 3710-118 MANAGER, ATHLETE, two years experience as an athlete or trainer.

ADVANCEMENT POSSIBILITIES: With additional training, some workers in this chapter may advance to occupations requiring higher skills within their individual cluster.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other areas of work, such as educational administration, teaching, sportwriting, sports announcing, and managing health centres or sporting goods stores.

OCCUPATIONAL TITLES:

3710-110	DIRECTOR, ATHLETICS
3710-114	MANAGER, PROFESSIONAL ATHLETIC TEAM
3710-118	MANAGER, ATHLETE

QUALIFICATIONS PROFILES:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	4	4	3	4	4	4	5	5	S-L45	I-B	5	8-7	256	45971

124, 128, 224

3710-C COACHES, TRAINERS, INSTRUCTORS AND MANAGERS, SPORT AND RECREATION

WORK PERFORMED: This chapter includes occupations concerned with administering and directing athletic programs; managing and coaching teams and individuals; and training and instructing athletes and other individuals in competitive and recreational sport. Worker functions include: co-ordinating team effort. or directing the entire athletic activities of an establishment such as college, university or professional team; analyzing the athletic skills and abilities of individuals; negotiating with athletes or their managers to obtain, sell or trade the services of sports personnel and arrange their contracts, salaries and working agreements; and instructing, teaching and coaching athletes to improve their physical fitness and individual capabilities for particupation in sports. Work activities include: explaining or demonstrating to athletes the fundamentals, rules, techniques and exercises required for a particular sport; observing opposition's strategy and developing counter-play patterns, conducting drills and practices; and recommending changes in personnel.

APTITUDES AND CAPACITIES: Workers in Cluster C require: learning ability to understand and instruct in the rules, skills and strategy of their particular athletic specialty; verbal ability to communicate effectively when instructing athletes or when addressing the public; eye-hand co-ordination to participate, illustrate or demonstrate athletic skills and techniques; capacity to move the fingers to demonstrate the use of sports apparatus and techniques, or to massage parts of players' bodies, and to administer first aid; manual dexterity to easily demonstrate skills required for sports and games; eye-hand-foot co-ordination when demonstrating techniques used in sports, such as skiing, hockey and basketball; strength and physical stamina to endure the vigorous physical activities required in coaching or instructing in sports.

TRAINING AND ENTRY REQUIREMENTS: six to twelve years of general education; a minimum of two years of on-the-job training; one to two years as an athlete in the particular sport. For 3710-138 ATHLETIC TRAINER, a degree in physical therapy, or three to four years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in Cluster C may advance to occupations in Cluster A providing they have the requisite educational qualifications. Certain workers in Cluster C may advance to 3710-126 SCOUT, PROFESSIONAL SPORTS.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other areas of work, such as educational administration, teaching, sportswriting, sports announcing and managing health centres or sporting goods stores.

OCCUPATIONAL TITLES:

3710-122	COACH, PROFESSIONAL ATHLETIC TEAM
3710-130	INSTRUCTOR, PHYSICAL TRAINING
3710-134	SWIMMING INSTRUCTOR
3710-138	ATHLETIC TRAINER
3710-142	COACH, AMATEUR ATHLETIC TEAM
3710-146	GOLD PROFESSIONAL
3710-150	SKI INSTRUCTOR
3710-154	JUDO INSTRUCTOR
3710-158	INSTRUCTOR, ICE SKATING
3710-162	RIDING INSTRUCTOR
3710-166	INSTRUCTOR, BOWLING

QUALIFICATIONS PROFILES:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	$\underline{2}$	$\underline{2}$	4	4	4	4	$\underline{3}$	4	$\underline{3}$	$\underline{3}$	4
	$\underline{3}$	$\underline{3}$		3	3			$\underline{3}$	4	$\underline{2}$	5
										$\underline{1}$	

PA	EC	GED	SVP	INTS.	TEMPS.
L-H23457	I-B	5-3	7-5	645	4590

3713-A ATHLETES

WORK PERFORMED: This chapter includes occupations concerned with active participation for monetary gain, in athletic games or sports as competitor or player. Worker functions include: analyzing performance of self or of competitors; devising new strategies or tactics to win sporting events; developing physical ability and proficiency in a particular sport; and driving in automobile or horse races. Work activities include: exercising to develop stamina; practising to increase effectiveness in respective sport; test-driving or making qualifying runs in race cars; and working out with horses to determine their peculiarities prior to races.

APTITUDES AND CAPACITIES: Athletes require: learning ability to understand the principles of physical fitness and the rules and regulations of the respective sport; spatial perception to visualize their positions in relation to team mates and opponents according to pre-game instructions; form perception to discern pertinent detail when inspecting sports equipment or examining horses, sulkies or race cars; eye-hand co-ordination to make rapid, precise movements; for example, when passing a hockey puck or football to team mate when both are in motion or when overtaking another driver in a race; finger dexterity to control a ball when throwing it, or to direct a horse with reins; manual dexterity to move the hands and wrists skilfully when throwing a ball, shooting a puck, driving a race car, or delivering a blow when boxing; eye-hand-foot co-ordination to catch, hit and throw a ball or to operate the gear shift, pedals and steering wheel of a race car; strength and stamina to perform the physical effort demanded by the respective sport; ability to maintain body equilibrium during athletic activities when running, skating or riding; ability to stoop, kneel and crouch, such as required when catching a ball or tending goal in hockey; ability to reach and hold or grasp objects with hands as when catching a baseball or football or restraining an opponent in wrestling; capacity to give and hear verbal instructions under noisy conditions during games or to differentiate between sounds during races; visual acuity, accommodation, field of vision, depth perception and colour vision to see the location of opponents or objects such as balls and hockey pucks, to judge relative distances, and to identify and distinguish colour markings.

TRAINING AND ENTRY REQUIREMENTS: There are no minimum educational requirements; completion of a number of seasons as a team member of individual practice depending on individual's ability and the sport.

ADVANCEMENT POSSIBILITIES: Athletes may advance, as members of teams or as individuals, to progressively higher levels of professional competition, normally dependent upon their skills, ability and experience. Some athletes with qualifications and potential for leadership and organization may become coaches or managers of teams of individual competitors.

TRANSFER POSSIBILITIES: Athletes, having the necessary temperaments and other qualifications, may transfer to occupations concerned with enforcing the rules and regulations governing athletic competitions and sporting events, see Chapter 3711 REFEREES AND RELATED OFFICIALS. Others may take up training, instructing, or scouting for professional sports organizations, see Chapter 3710 COACHES, TRAINERS, INSTRUCTORS AND MANAGERS, SPORT AND RECREATION. Successful competitors become well known to the public, consequently, opportunities for transfer to business endeavour particularly in the sales field, may arise late in the career of a professional athlete.

OCCUPATIONAL TITLES:

3713-110 ATHLETE

QUALIFICATIONS PROFILES:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	2	3	4	2	2	2	1	2	L234567	B56	3	7	56	89

410 - CLERICAL SUPERVISORS

WORK PERFORMED: This chapter includes occupations concerned with supervising and co-ordinating the activities of workers engaged in performing a variety of clerical duties, such as recording, transcribing and typing dictated or prepared material; paying and receiving money; operating office machines, electronic data-processing equipment and telephone switchboards; receiving and shipping goods; and distributing mail, and delivering messages. Worker functions include: determing time, place and sequence of clerical operations or action to be taken on the basis of analysis of data; and supervising workers by defining or interpreting work procedures, assigning specific duties and ensuring assigned tasks are completed according to schedule. Work activities include: maintaining harmonious relations and promoting efficiency; requisitioning materials, money or supplies; hiring and training workers; preparing production reports; evaluating quality of work; recommending or initiating personnel actions such as promotions, transfers and disciplinary measures; conferring with workers to resolve complaints and grievances; and suggesting measures to improve work methods; service or working conditions.

APTITUDES AND CAPACITIES: learning ability to understand and apply supervisory principles and practices and the techniques associated with the type of clerical work supervised; verbal ability to effectively communicate with superiors and sub-ordirates; numerical ability when supervising activities of workers engaged in keeping accounts and financial records, paying and receiving money, maintaining bank's and customers' records, bookkeeping, billing, requisitioning and accounting for stock, adjusting claims and collecting payments; clerical perception to detect errors in correspondence, price lists, inventory records and other written or tabular material.

TRAINING AND ENTRY REQUIREMENTS: Workers are normally appointed from employees who have demonstrated leadership qualities and initiative in lower level jobs. The normal requirement is 10 to 14 years of education, general and/or commercial, and 6 months to 4 years experience in related subordinate positions and/or on-the-job training, depending on the supervisory position involved. Some employers may provide formalized courses in such subjects as business management, work simplification, job relationships, and job instruction training to potential or newly-appointed supervisors.

ADVANCEMENT POSSIBILITIES: Workers who demonstrate superior ability and potential for development normally may advance to managerial or administrative positions such as assistant manager or department manager within their establishment or field of work. For example, 4140-110 SUPERVISOR, ELECTRONIC DATA-PROCESSING EQUIPMENT OPERATORS could advance to 1131-114 MANAGER, DATA PROCESSING AND SYSTEMS ANALYSIS, while 4150-114 SUPERVISOR, SHIPPING AND RECEIVING CLERKS may be promoted to 1149-146 MANAGER, WAREHOUSE. Opportunities also exist for advancement to other managerial or related occupations such as 1149-126 MANAGER, ADMINISTRATION, 1174-118 PERSONNEL OFFICER, and 1179-182 ADMINISTRATIVE OFFICER. See Major Group 11 MANAGERIAL ADMINISTRATIVE AND RELATED OCCUPATIONS for additional promotional possibilities.

TRANSFER POSSIBILITIES: Clerical work is commonly found in most establishments, regardless of the type of goods they produce or the services they render. Consequently, workers could transfer to similar positions in other department, branches or establishments; or to other supervisory occupations within this chapter.

OCCUPATIONAL TITLES:

4110-110	SUPERVISOR, STENOGRAPHERS & TYPISTS
4110-114	SUPERVISOR, TELETYPISTS
4130-110	SUPERVISOR, BOOKKEEPERS & ACCOUNTING CLERKS
4130-114	SUPERVISOR, CASHIERS
4130-118	SUPERVISOR, INSURANCE, BANK & OTHER FINANCE CLERKS
4130-122	SUPERVISOR, STATISTICAL CLERKS
4130-126	HEAD TELLER
4130-130	ASSISTANT ACCOUNTANT, BANK
4140-110	SUPERVISOR, ELECTRONIC DATA-PROCESSING EQUIPMENT OPERATORS
4140-114	SUPERVISOR, OFFICE-MACHINE OPERATORS
4150-110	SUPERVISOR, PRODUCTION CLERKS
4150-114	SUPERVISOR, SHIPPING & RECEIVING CLERKS
4150-118	SUPERVISOR, STOCK CLERKS
4160-110	SUPERVISOR, LIBRARY & FILE CLERKS
4170-110	SUPERVISOR, MAIL & POSTAL CLERKS
4170-114	SUPERVISOR, MAIL CARRIERS
4170-118	SUPERVISOR, MESSENGERS
4170-122	SUPERVISOR, RECEPTIONISTS & INFORMATION CLERKS
4170-126	SUPERVISOR, TELEPHONE OPERATOR
4170-130	SUPERVISOR, POSTAL STATION
4190-110	SUPERVISOR, CLAIMS ADJUSTERS
4190-114	SUPERVISOR, COLLECTION CLERKS
4190-118	SUPERVISOR, GENERAL OFFICE CLERKS
4190-122	SUPERVISOR, HOTEL CLERKS
4190-126	SUPERVISOR, PERSONNEL CLERKS
4190-130	SUPERVISOR, TRAVEL CLERKS
4190-134	SUPERVISOR, COPYRIGHT CLEARANCE
4190-138	SUPERVISOR, NURSING REGISTRY

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	3	3	4	4	4	3	4	4	4	5	5
	2		3								4

FA	EC	GED	SVP	INTS.	TEMPS.
S-L56	I	5-3	7-5	25	450

4111-A SECRETARIES AND STENOGRAPHERS

WORK PERFORMED: This chapter includes occupations concerned with taking dictation by shorthand, steno-type machine or dictaphone, transcribing data by typewriter, and performing general office duties. Worker functions include: compiling and collating information and operating typewriters, and other transcribing machines. Work activities include: composing routine correspondence, taking dictation, answering and making telephone calls, making appointments, filing and classifying correspondence.

APTITUDES AND CAPACITIES: Secretaries require: learning ability to understand and apply a system of shorthand writing and to understand and apply general office procedures; verbal ability to understand meaning and relationships of words and ideas associated with them to ensure proper use of grammar, correct spelling and, for some positions, a knowledge of specialized terminology; form perception to perceive differences in shorthand symbols; clerical perception to observe details in written or tabular material, and to ensure a high degree of accuracy in transcription; eye-hand-finger co-ordination to make precise and rapid shorthand symbols and to transcribe them accurately by typewriter; finger dexterity to move fingers quickly and accurately while operating typewriter or shorthand machines; capacity for hearing instructions and asking for clarification by listening and talking; near visual acuity to discern shorthand notes and handwriting.

TRAINING AND ENTRY REQUIREMENTS: Secretaries normally require: ten to twelve years of general education; and three to six months of training in a business college, or one year in a special commercial course at a high school; OR graduation from a secondary commercial school. Secretaries also require from three months to one year of stenographic experience to become proficient especially when a knowledge of the terminology of a particular field, such as medicine, law or engineering is required.

ADVANCEMENT POSSIBILITIES: Secretaries with supervisory ability may advance to 4110-110 SUPERVISOR, STENOGRAPHERS AND TYPISTS. See also Chapter 410, CLERICAL SUPERVISORS for qualifications profile.

TRANSFER POSSIBILITIES: Secretaries may transfer to other clerical/stenographic occupations.

OCCUPATIONAL TITLES:

4111-110 SECRETARY

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	3	2	3	3	3	5	5	S4567	I	4	6	26	59Y1

364, 384

4111-B SECRETARIES AND STENOGRAPHERS

WORK PERFORMED: This chapter includes occupations concerned with taking dictation by shorthand, steno-type machine or dictaphone, transcribing data by typewriter, and performing general office duties. Worker functions include: compiling and collating information and operating typewriters, and other transcribing machines. Work activities include: composing routine correspondence, taking dictation, answering and making telephone calls, making appointments, filing, and classifying correspondence.

APTITUDES AND CAPACITIES: Stenographers require: learning ability to understand and apply a system of shorthand writing and to understand and apply general office procedures; verbal ability to understand meaning and relationships of words and ideas associated with them to ensure proper use of grammar, correct spelling and, for some positions, a knowledge of specialized terminology; form perception to perceive differences in shorthand symbols; clerical perception to observe details in written or tabular material, and to ensure a high degree of accuracy in transcription; eye-hand-finger co-ordination to make precise and rapid shorthand symbols and to transcribe them accurately by typewriter; finger dexterity to move fingers quickly and accurately while operating typewriter or shorthand machines; capacity for hearing instructions and asking for clarification by listening and talking; near visual acuity to discern shorthand notes and handwriting.

TRAINING AND ENTRY REQUIREMENTS: Stenographers normally require: ten to twelve years of general education; and three to six months of training in a business college, or one year in a special commerical course at a high school; OR graduation from a secondary commerical school. Court Reporters also require speed training in shorthand, or other methods of speedwriting and the use of shorthand machines and dictaphones.

ADVANCEMENT POSSIBILITIES: Stenographers with supervisory ability may advance to 4110-110 SUPERVISOR, STENOGRAPHERS AND TYPISTS. See also Chapter 410, CLERICAL SUPERVISORS for qualifications profile. Stenographers may become Court Reporters after completing the special training required.

TRANSFER POSSIBILITIES: Stenographers may transfer to some clerical occupations in Major Group 41, CLERICAL AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

4111-114 COURT REPORTER	4111-118 STENOGRAPHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	3	3	2	2	3	5	5	S4567	I	3	6-5	36	2Y3
							3	3									

4113 - TYPISTS AND CLERK-TYPISTS 364, 584

WORK PERFORMED: This chapter includes occupations concerned with recording data by typewriter; transmitting or receiving messages by teletype; and performing general duties, most of which involve typing. Worker functions include: operating telegraphic and manual typewriters and dictating machines; and copying information from files and from typewritten and handwritten data. Work activities include: transcribing letters, reports and other recorded data, sending and receiving messages by teletype; and filing and keeping records.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the operation of typewriters and to comprehend and apply instructions for typing and transcribing information; spatial perception for vari-type operators and typists to visualize spacing and arrangement of material in narrative and tabular form; form perception to note pertinent detail when typing charts and statistical data; clerical perception to perceive pertinent details in written or tabular material, to proofread finished copy, and to observe typing and transcription errors; eye-hand-finger co-ordination to type rapidly and accurately while reading from copy, and to make necessary adjustments; finger dexterity to manipulate typewriter keys with speed and accuracy; capacity to extend the hands and arms to pick up and collate material, insert paper and tape, and operate typing and transcribing machines; good hearing and listening ability; near-visual acuity to read handwritten reports and correct typing errors.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; and commercial or business college training from three to six months; or three to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement is usually from 4113-124 CLERK-TYPIST and 4113-126 TYPIST to 4111-118 STENOGRAPHER, if additional training in shorthand or speed writing has been taken. Those with supervisory and leadership abilities, and sufficient experience, may advance to supervisory occupations, Unit Group 4110 SUPERVISORS, STENOGRAPHIC AND TYPING OCCUPATIONS. See also Chapter 410, CLERICAL SUPERVISORS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other related occupations such as 4143-134 KEYPUNCH OPERATOR or 4143-142 REMOTE COMPUTER TERMINAL OPERATOR.

OCCUPATIONAL TITLES:

4113-110	AUTOMATIC-TYPEWRITER OPERATOR
4113-114	TELETYPIST
4113-118	TRANSCRIBING-MACHINE OPERATOR
4113-122	VARI-TYPE OPERATOR
4113-124	CLERK-TYPIST
4113-126	TYPIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS..
	3	3	4	4	4	3 2	3 2	3 2	3	5	5	S4567	I	3	4-3	3-1	2Y3

4131 - BOOKKEEPERS AND ACCOUNTING CLERKS

367, 384, 388, 464, 468, 484

WORK PERFORMED: This chapter includes occupations concerned with computing, classifying and recording data to maintain sets of financial records. Worker functions include: compiling data for statements, computing figures for accounts, giving information on accounts and other financial matters to associates and the public, and operating various office machines. Work activities include: verifying accuracy of records related to receipts and other transactions; correcting computational errors, posting entries in ledgers, balancing financial records, and preparing reports.

APTITUDES AND CAPACITIES: Bookkeepers and Accounting Clerks require: learning ability to understand and apply accounting and bookkeeping principles and procedures, including the preparation of financial statements; numerical ability to make mathematical computations quickly and accurately; clerical perception to note pertinent details, such as debits and credits in accounts, to proofread words and numbers, and to avoid errors in arithmetic computation; eye-hand-finger co-ordination and finger dexterity to move hands and fingers accurately and rapidly when operating various office machines; near-visual acuity for compiling, computing and checking statements and accounts.

TRAINING AND ENTRY REQUIREMENTS: Bookkeepers and Accounting Clerks normally require: ten to twelve years of general education, preferably with emphasis on mathematics and commerical subjects; from one month to two years of on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experiences workers in this chapter may advance to positions requiring higher skills within the chapter. Those who have a potential for supervision may advance to 4130-110 SUPERVISOR, BOOKKEEPERS AND ACCOUNTING CLERKS. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other positions requiring similar skills within this chapter, or to appropriate occupations in Chapters 4133, TELLERS AND CASHIERS; 4135 INSURANCE, BANK AND OTHER FINANCE CLERKS; 4137, STATISTICAL CLERKS; and 4139, BOOKKEEPING, ACCOUNT-RECORDING AND RELATED OCCUPATIONS, N.E.C., where a short training period may be sufficient to acquaint the worker with the new occupation.

OCCUPATIONAL TITLES:

4131-110	ACCOUNT-INFORMATION CLERK
4131-114	BOOKKEEPER
4131-118	PAYROLL CLERK
4131-122	BILLING CLERK, UTILITIES
4131-126	COST CLERK
4131-130	FOOD CONTROLLER
4131-134	ACCOUNTING CLERK
4131-138	AUDIT CLERK
4131-142	BOOKKEEPING CLERK
4131-146	BUDGET CLERK
4131-150	BALANCE CLERK
4131-154	BILLING CLERK
4131-158	TIMEKEEPER
4131-162	POSTING CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3 2	4	4 3	2 3	3 4	3 4	4	5	5	S47	I	4-3	6-3	13	Y 3Y

4133 - TELLERS AND CASHIERS

367, 464, 467, 487

WORK PERFORMED: This chapter includes occupations concerned with receiving and disbursing money in establishments such as stores, banks, trust companies, credit unions, theatres, and race tracks. Worker functions include: performing arithmetical computations; compiling information to prepare bank reconciliation and other financial statements; giving information to customers and assisting them with their financial transactions. Work activities include: receiving and paying out money; recording monetary transactions such as cash received from customers in banks and stores, race tracks and theatres; preparing bank statements and reconciling errors or discrepancies in financial records; counting and issuing money for use in sales departments and places of amusement; selling admission tickets; collecting tolls at toll-bridges; and cashing winning parimutuel tickets at race tracks.

APTITUDES AND CAPACITIES: Tellers and Cashiers require: learning ability to understand and apply the procedures for receiving, accounting and disbursing money in banking, business and other financial establishments; verbal ability to communicate effectively with people and to answer a variety of enquiries; numerical ability to perform arithmetic computations quickly and accurately when receiving counting and paying out money and making change; clerical perception to observe and correct errors or omissions in statements and accounts and to note pertinent detail in rate tables and price lists; eye-hand-finger co-ordination and finger dexterity to make precise movements with speed and accuracy while counting money, and operating cash registers and calculating machines; near visual acuity for checking statements or paying out and receiving money.

TRAINING AND ENTRY REQUIREMENTS: Tellers and Cashiers normally require: ten to twelve years of general education; on-the-job training of from three months to one year, depending on the occupation.

ADVANCEMENT POSSIBILITIES: Experiences Tellers and Cashiers with supervisory ability may advance to appropriate occupations, Unit Group 4130, SUPERVISORS, BOOKKEEPING, ACCOUNT-RECORDING AND RELATED OCCUPATIONS. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profile.

TRANSFER POSSIBILITIES: Tellers and Cashiers may, with some additonal training, transfer to some occupations in Chapter 4131, BOOKKEEPERS AND ACCOUNTING CLERKS, because of the similarity of work performed.

OCCUPATIONAL TITLES:

4133-110	TELLER
4133-114	FOREIGN-EXCHANGE TELLER
4133-118	CASHIER
4133-122	CASHIER, OFFICE
4133-126	MONEY COUNTER
4133-130	CASHIER, BOX OFFICE
4133-134	CASHIER, CUSTOMER SERVICE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3 4	3 2	4	4	2 3 4	3	3	4	5	4	S-L4567	I	4-3	5-3	231	5Y2

4135 - INSURANCE, BANK AND OTHER FINANCE CLERKS 264, 268, 384, 387, 388, 484, 668

WORK PERFORMED: This chapter includes occupations concerned with performing clerical duties in banking, insurance, finance, real estate, and other fields. Worker functions include: making arithmetic computations, compiling insurance, finance and real estate data; and operating adding, calculating and similar office machiens. Work activities include: reviewing insurance applications, calculating premiums, dividends and cash-surrender values, making insurance-policy changes; processing applications for loans and mortgages; checking ledgers, renting safety-deposit boxes and recording security deposits.

APTITUDES AND CAPACITIES: learning ability to understand and apply numerical, record-keeping and data gathering systems and procedures in establishments, such as those in banking, insurance, finance and real estate; verbal ability for those occupations which involve giving clean and precise information to clients, orally or in writing; numerical ability to perform arithmetic operations quickly and accurately; clerical perception to observe discrepancies in written or mathematical data; eye-hand-finger co-ordination and finger dexterity to operate office machines quickly and accurately; near visual acuity for close-up work involving the review of insurance and loan applications, and making calculations.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education, with emphasis on commercial subjects and mathematics; three months to two years of on-the-job training, depending on the complexity of the occupations.

ADVANCEMENT POSSIBILITIES: Advancement may be to more complex occupations within this chapter. Experienced workers with supervisory ability and leadership qualities may advance to 4130-118 SUPERVISOR, INSURANCE, BANK AND OTHER FINANCE CLERKS. See also Chapter 410 CLERICAL SUPERVISORS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be other occupations in this chapter requiring similar skills. Transfer may also be made to occupations, sush as 4131-138 AUDIT CLERK; and 4131-150 BALANCE CLERK; or to appropriate positions in Cahpter 4131, BOOKKEEPERS AND ACCOUNTING CLERKS.

OCCUPATIONAL TITLES:

4135-110	GENERAL CLERK, INSURANCE
4135-114	POLICY-CHANGE CLERK
4135-118	PROPERTY AND EQUIPMENT INSURANCE CLERK
4135-122	SPECIAL-ENDORSEMENT CLERK
4135-126	ACTUARIAL CLERK
4135-130	REINSURANCE CLERK
4135-134	INSURANCE CLERK, BANK
4135-138	WORKSHEET CLERK
4135-142	INSURANCE CHECKER
4135-146	EMPLOYEE-INSURANCE CLERK
4135-150	INSURANCE CLERK, HOSPITAL
4135-154	RATER, PREMIUM
4135-158	CLAIM CLERK
4135-162	DIVIDEND CLERK
4135-182	UTILITY CLERK, BANK
4135-186	FOREIGN-REMITTANCE CLERK
4135-190	RESERVES CLERK
4135-194	SECURITIES CLERK
4135-198	CREDIT CLERK, BANK
4135-202	COLLECTION CLERK, BANKING
4135-206	BANK-RECONCILIATION CLERK
4135-210	SAFETY-DEPOSIT-BOX CUSTODIAN
4135-230	PENSION-PLAN CLERK
4135-234	REAL ESTATE CLERK
4135-238	MORTGAGE CLERK
4135-242	BROKERAGE CLERK
4135-246	MARGIN CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	3	4	4	5	5	S4567	I	4-3	6-3	312	Y5
						2	4	3									Y53

4137 - STATISTICAL CLERKS

WORK PERFORMED: This chapter includes occupations concerned with compiling and tabulating statistics, based on routine or special information, and preparing reports to assist in the interpretation of statistical studies. Worker functions include: compiling information, making mathematical computations, and operating desk computers, adding and calculating machines. Work activities include: preparing charts, graphs, diagrams and statistical tables for use in statistical studies; assembling and classifying data; checking data for accuracy, completeness and consistency; and preparing reports.

APTITUDES AND CAPACITIES: Statistical Clerks require: learning ability to understand and apply the principles and procedures of record-keeping and data-gathering for the compilation and analysis of statistical data; numerical ability to understand and apply arithmetic and statistical procedures and to correct computational errors; clerical perception to discern pertinent detail in graphic or tabular material, proofread numbers and avoid errors in computations; eye-finger co-ordination to prepare charts, graphs and diagrams, and to operate office machines; capacity to extend hands and arms to retrieve statements and other statistical material; near visual acuity to see numbers clearly and to review statistical tables for correctness and completeness.

TRAINING AND ENTRY REQUIREMENTS: Statistical Clerks normally require: twelve years of general education with an emphasis on mathematics; six months to one year of on-the-job training; some previous experience in clerical work involving the use of adding or calculating machines.

ADVANCEMENT POSSIBILITIES: Experienced Statistical Clerks with supervisory ability may advance to 4130-122 SUPERVISOR, STATISTICAL CLERKS. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profile. With additional mathematical training, some Statistical Clerks may advance to 2189-114 STATISTICAL TECHNICIAN.

TRANSFER POSSIBILITIES: Transfer may be to some clerical occupations, requiring similar skills, in Chapter 4131, BOOKKEEPERS AND ACCOUNTING CLERKS.

OCCUPATIONAL TITLES:

4137-110 STATISTICAL CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	2	4	3	2	3	3	4	5	5	L47	I	4	5	3	2OY

4141-A OFFICE MACHINE OPERATORS

384, 484, 584

WORK PERFORMED: This chapter includes occupations concerned with operating office machines for purposes, such as bookkeeping, calculating, coding, photocopying, embossing, addressing, folding, inserting, coin sorting, counting and wrapping. Worker functions include: operating or tending office machines by manipulating keys and levers; and computing, copying and comparing data. Work activities include: inserting record cards or rolls of paper tape into machines; setting machine guides and adjusting feed-mechanisms for duplicating, addressing, and embossing operations; preparing mail for distribution; and performing general office duties.

APTITUDES AND CAPACITIES: Learning ability to understand and apply instructions for the operation of office machines, and for 4141-110 BOOKKEEPING MACHINE OPERATOR, a knowledge of the principles and applications of bookkeeping; numerical ability to make arithmetic calculations quickly and accurately; form perception to note pertinent detail or slight differences in shapes and shadings and width and thickness of lines in graphic or tabular material, such as coded messages, photocompositions and banking records; clerical perception to observe pertinent details in typewritten or handwritten material, and to note arithmetic discrepancies in financial statements and accounts or to avoid errors in arithmetic calculations; eye-hand-finger co-ordination in making precise movements with speed and accuracy while simultaneously operating office machines; finger dexterity to manipulate office-machine keyboards and levers quickly and accurately.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: ten to twelve years of general education; business college training in operating office machines; or three months to one years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to higher levels of responsibility within their respective cluster. Those with supervisory ability may advance to 4140-114 SUPERVISOR, OFFICE-MACHINE OPERATORS. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to other occupations within their respective cluster for which skills and experience are similar. Others may transfer to some occupations in Chapter 4131, BOOKKEEPERS AND ACCOUNTING CLERKS because of similarity of work performed.

OCCUPATIONAL TITLES:

4141-110	BOOKKEEPING-MACHINE OPERATOR
4141-114	CRYPTOGRAPHIC-MACHINE OPERATOR
4141-118	PHOTOCOMPOSING-MACHINE PERFORATOR OPERATOR
4141-122	PROOF-MACHINE OPERATOR
4141-126	AUDIT-MACHINE OPERATOR
4141-130	BILLING-MACHINE OPERATOR
4141-134	CALCULATING-MACHINE OPERATOR
4141-138	TYPESETTER-PERFORATOR OPERATOR
4141-154	ADDING-MACHINE OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3 4	4	3 4	3 2	3	3	3	5	5	S47	I	4-3	5-3	913	2Y3

4141-B OFFICE MACHINE OPERATORS 584, 585, 684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with operating office machines for purposes, such as bookkeeping, calculating, coding, photocopying, embossing, addressing, folding, inserting, coin sorting, counting and wrapping. Worker functions include: operating or tending office machines by manipulating keys and levers; and computing, copying and comparing data. Work activities include: inserting record cards or rolls of paper tape into machines; setting machine guides and adjusting feed-mechanisms for duplicating, addressing, and embossing operations; preparing mail for distribution; and performing general office duties.

APTITUDES AND CAPACITIES: Learning ability to understand and apply instructions for the operation of office machines; form perception to note pertinent details or slight difference in shapes and shading and width and thickness of lines in pictorial or graphic materials, such as microfilm records, address labels, or photocopied material; eye-hand-finger co-ordination for loading materials into office machines while rapidly and accurately setting machine controls, stops and guides; finger dexterity to move the fingers and insert documents in office machines rapidly while simultaneously adjusting and operating these machines; manual dexterity to move the hands skilfully and easily when sorting and counting money, searching and retrieving information and positioning material in machines.

TRAINING AND ENTRY REQUIREMENTS: Eight to ten years of general education; from a short demonstration up to six months of on-the-job training, depending upon the occupation.

ADVANCEMENT POSSIBILITIES: Experiences workers in this chapter may advance to higher levels of responsibility within their respective cluster. Those with supervisory ability may advance to 4140-114 SUPERVISOR, OFFICE-MACHINE OPERATORS. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to other occupations within their respective cluster for which skills and experience are similar. Others may transfer to some occupations in Chapter 4131, BOOKKEEPERS AND ACCOUNTING CLERKS, because of similarity of work performed. Workers in this cluster may transfer to some occupations in Cluster A, such as those of adding or calculating machine operators, while others may transfer to other occupations within these clusters because of similiarities in work performed.

OCCUPATIONAL TITLES:

4141-142	CURRENCY SORTER
4141-150	MICROFILM-RECORDS SEARCHER
4141-162	INTEGRATOR OPERATOR
4141-170	COIN-MACHINE TENDER
4141-178	ADDRESS-LABELLING-MACHINE TENDER
4141-182	BURSTING-MACHINE TENDER
4141-184	ENVELOPE-SEALING AND IMPRINTING MACHINE TENDER
4141-190	INSERTING-MACHINE TENDER
4141-194	PHOTOCOPYING-MACHINE TENDER
4141-198	STENCIL-CUTTER TENDER
4141-202	MICROFILM MOUNTER
4141-206	ADDRESS-PLATE INSERTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	4	5	5	S-L47	I	3-2	4-2	931	23Y
			5		3		3										

4141-C OFFICE MACHINE OPERATORS

582, 584, 682, 684, 685

WORK PERFORMED: This chapter includes occupations concerned with operating office machines for purposes, such as bookkeeping, calculating, coding, photocopying, embossing, addressing, folding, inserting, coin sorting, counting and wrapping. Worker functions include: operating or tending office machines by manipulating keys and levers; and computing, copying and comparing data. Work activities include: inserting record cards or rolls of paper tape into machines; setting machine guides and adjusting feed-mechanisms for duplicating, addressing, and embossing operations; preparing mail for distribution; and performing general office duties.

APTITUDES AND CAPACITIES: Learning ability to understand the principles and operation of duplicating, embossing, stamping and related office machines; form perception to note pertinent details of slight differences in shapes or shadings in duplicated, embossed, or stamped records; eye-hand-finger co-ordination to insert documents or paper in machines, while adjusting and operating these machines; manual dexterity to move the hands easily and skilfully, when positioning plates and other material in machines.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; from a short demonstration up to six months of on-the-job training, depending upon the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to higher levels of responsibility within their respective cluster. Those with supervisory ability may advance to 4140-114 SUPERVISOR, OFFICE-MACHINE OPERATORS. See also Chapter 410, CLERICAL SUPERVISORS for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to other occupations in Cluster A, such as those of adding or calculating machine operators, while others may transfer to other occupations within these clusters because of similarities in work performed.

OCCUPATIONAL TITLES:

4141-146	DUPLICATING-MACHINE OPERATOR	4141-166	EMBOSSING-MACHINE OPERATOR
4141-148	BLUEPRINTING-MACHINE OPERATOR	4141-174	MIMEOGRAPH OPERATOR
4141-158	ADDRESSING-MACHINE OPERATOR	4141-186	EXCISE-STAMP CANCELLING MACHINE TENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	3	4	4	5	5 4	S-LM47	I	3-2	3-2	931	23Y

4143-A ELECTRONIC DATA-PROCESSING EQUIPMENT OPERATORS 382, 682

WORK PERFORMED: This chapter includes occupations concerned with operating electronic and electromechanical machines to convert data from one form to another. Worker functions include: operating and tending electronic data-processing equipment; manipulating control switches, guides and keys; transcribing data onto punch cards; compiling clerical records; and comparing punch cards to remove those incorrectly punched. Work activities include: selecting and loading input and output units with materials; sorting and photographing cheques; placing punched cards in machine; wiring plugboards to make circuit connections according to prepared diagrams; attaching punched-program cards around machine drum to control duplication and spacing of constant data; typing data according to copy; and collecting cards to be sorted.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply instructions for operating electronic and electromechanical data-processing machines; form perception to note pertinent detail in graphic and tabular material used in data-processing records; clerical perception to observe pertinent detail in verbal or tabular material contained in instructions and documents; eye-hand-finger co-ordination to make precise movements rapidly and accurately while operating machines; finger dexterity to rapidly and accurately manipulate cards, reels of tape and key-punch and other machines; manual dexterity to move hands easily and skillfully when wiring plugboards, and operating and tending equipment; capacity to reach for, lift handle and feel equipment such as wires for plugboards; near visual acuity to wire plugboards and make circuit connections and distinguish colours; verbal ability to understand meaning of words and ideas associated with them, and to use them effectively in the field of electronic data processing.

TRAINING AND ENTRY REQUIREMENTS: Workers require: twelve years of general education preferably with emphasis on mathematics; six months to two years of on-the-job training combined with experience in operating related electric and electronic accounting equipment.

ADVANCEMENT POSSIBILITIES: Experienced workers in this cluster with supervisory abilities and a potential for leadership may advance to 4140-110 SUPERVISOR, ELECTRONIC DATA-PROCESSING EQUIPMENT OPERATORS. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profile.

TRANSFER POSSIBILITIES:
Transfer for workers in this chapter may be to other occupations within their respective clusters.

OCCUPATIONAL TITLES:
4143-110 COMPUTER OPERATOR
4143-114 COMPUTER-PERIPHERAL EQUIPMENT OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	3	3	3	3	5	4	L47	I	4	6-5	91	1Y
								4	4								

4143-B ELECTRONIC DATA-PROCESSING EQUIPMENT OPERATORS

584, 684

WORK PERFORMED: This chapter includes occupations concerned with operating electronic and electromechanical machines to convert data from one form to another. Worker functions include: operating and tending electronic data-processing equipment; manipulating control switches, guides and keys; transcribing data onto punch cards; compiling clerical records; and comparing punch cards to remove those incorrectly punched. Work activities include: selecting and loading input and output units with materials; sorting and photographing cheques; placing punched cards in machine; wiring plugboards to make circuit connections according to prepared diagrams; attaching punched-program cards around machine drum to control duplication and spacing of constant data; typing data according to copy; and collecting cards to be sorted.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply instructions for operating electronic and electromechanical data-processing machines; form perception to note pertinent detail in graphic and tabular material used in data-processing records; clerical perception to observe pertinent detail in verbal or tabular material contained in instructions and documents; eye-hand-finger co-ordination to make precise movements rapidly and accurately while operating machines; finger dexterity to rapidly and accurately manipulate cards, reels of tape and key-punch and other machines; manual dexterity to move hands easily and skilfully when wiring plugboards, and operating and tending equipment; capacity to reach for, lift, handle and feel equipment such as wires for plugboards; near visual acuity to wire plugboards and make circuit connections and distinguish colours.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; three months to one years of on-the-job training with previous experience in typing.

ADVANCEMENT POSSIBILITIES: Experienced workers with ability may advance to more responsible positions in key-punch units.

TRANSFER POSSIBILITIES: Transfer for workers in this chapter may be to other occupations within their respective clusters.

OCCUPATIONAL TITLES:

4143-122	VERIFIER OPERATOR	4143-142	REMOTE COMPUTER TERMINAL OPERATOR
4143-134	KEY-PUNCH OPERATOR		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	4	4	$\underline{3}$ 4	$\underline{3}$	$\underline{3}$	$\underline{3}$	$\underline{3}$	5	5	S47	I	3	5-3	931	23Y

4143-C ELECTRONIC DATA-PROCESSING EQUIPMENT OPERATORS 384, 684, 685

WORK PERFORMED: This chapter includes occupations concerned with operating electronic and electromechanical machines to convert data from one form to another. Worker functions include: operating and tending electronic data-processing equipment; manipulating control switches, guides and keys; transcribing data onto punch cards; compiling clerical records; and comparing punch cards to remove those incorrectly punched. Worker activities include: selecting and loading input and output units with materials; sorting and photographing cheques; placing punched cards in machine; wiring plugboards to make circuit connections according to prepared diagrams; attaching punched-program cards around machine drum to control duplication and spacing of constant data; typing data according to copy; and collecting cards to be sorted.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply instructions for operating electronic and electromechanical data-processing machines; form perception to note pertinent detail in graphic and tabular material used in data-processing records; clerical perception to observe pertinent detail in verbal or tabular material contained in instructions and documents; eye-hand-finger co-ordination to make precise movements rapidly and accurately while operating machines; finger dexterity to rapidly and accurately manipulate cards, reels of tape and key-punch and other machines; manual dexterity to move hands easily and skilfully when wiring plugboards, and operating and tending equipment; capacity to reach for, lift, handle and feel equipment such as wires for plugboards; near visual acuity to wire plugboards and make circuit connections and distinguish colours; spatial perception to visualize spacing when pressing switches to start card-tape converts, to photograph cheques and vouchers, and wire plugboards.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; three months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this cluster who gain experience and further training may advance to occupations in Cluster A.

TRANSFER POSSIBILITIES: Transfer for workers in this chapter may be to other occupations within their respective clusters.

OCCUPATIONAL TITLES:

4143-118	MAGNETIC INK CHARACTER RECOGNITION CLERK
4143-126	CARD-TAPE-CONVERTER OPERATOR
4143-130	HIGH-SPEED-PRINTER OPERATOR
4143-138	TABULATING-MACHINE OPERATOR
4143-146	SORTING-MACHINE TENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	4	$\underline{4}$	$\underline{3}$	$\underline{3}$	$\underline{3}$	$\underline{3}$	$\underline{3}$	5	4	S-L47	I	3	5-3	931	23Y
	$\underline{4}$	4	3		$\underline{4}$	4					5						

4151-B PRODUCTION CLERKS

364, 367, 368, 388, 484, 487, 588

WORK PERFORMED: This chapter includes occupations concerned with arranging and expediting the flow of work and materials to ensure that production and time quotas are met. Worker functions include: co-ordinating flow of materials and work within, or between production department compiling, collating, and recording information for production schedules, reports and records; and communicating with customers and distributors. Work activities include: examining orders for goods and services, reviewing and maintaining inventories and production records, preparing production schedules, and routing and delivering materials, parts and assemble for fabrication or repair.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply instructions concerned with expediting the flow of work and materials, and to make reasoned judgments concerning changes required in schedules; verbal ability to understand meanings of words and ideas associated with them, and to use them effectively when reviewing production schedules and work orders, reporting progress of operations and communicating with workers; numerical ability to carry out arithmetic processes quickly and accurately, such as preparing estimates of amounts of material and labour required, and calculating percentages; clerical perception to perceive pertinent detail in work orders, statistical reports and records; near visual acuity for examining and compiling operations' schedules and work records.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: ten to twelve years of general education; from three months to two years of on-the-job training; up to two years of related experience in accounting, purchasing, or production and work control.

ADVANCEMENT POSSIBILITIES: Advancement may be to a highter level of responsibility in the area of production control. Some production clerks may advance to sales occupations in the company providing they possess the necessary qualifications. Others, with some additional training, may advance to occupations such as 2165-238 INDUSTRIAL-ENGINEERING TECHNICIAN, or from occupation in Cluster B to Cluster A. Experienced Production Clerks with supervisory ability may advance to 4150-110 SUPERVISOR, PRODUCTION CLERKS. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer are normally limited to other occupations in this chapter. Other transfer possibilities, because of the similarity in work performed, would be to 4137-110 STATISTICAL CLERK or to occupations in Chapter 4153 SHIPPING AND RECEIVING CLERKS.

OCCUPATIONAL TITLES:

4151-122	CONTROL CLERK, ADVERTISING
4151-126	PROGRAM SCHEDULER
4151-130	CONTROL CLERK, DATA-PROCESSING
4151-134	PRODUCTION CLERK
4151-138	MATERIAL ESTIMATOR, CONSTRUCTION
4151-142	OVERHAUL PLANNER
8793-122T	MEASUREMAN
4151-146	RECORDER, STEEL MILL
4151-150	JOB ORDER CLERK, MANUFACTURING
4151-154	CLERK, CABLE TRANSFER
4151-158	INDUSTRIAL-ORDER-COMPLETION CLERK
4151-162	PROGRESS CLERK, CONSTRUCTION
4151-166	AIRCRAFT-RECORDS CLERK
4151-170	ASSIGNMENT CLERK
4151-174	EXPEDITER, PURCHASING
4151-178	SERVICE-WORK-ORDER CLERK
4151-182	VEHICLE-SERVICE SCHEDULER
4151-186	RECORDING CLERK, CASTINGS
4151-190	SCHEDULE CLERK
4151-192	ORDER CLERK, PRINTING PLATES
4151-194	ESTIMATOR, FABRIC

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3 4	4	4	3	4	4	4	5	5	S-L 4567	I	4-3	6-3	12	025

4153-A SHIPPING AND RECEIVING CLERKS 364, 367, 468

WORK PERFORMED: This chapter includes occupations concerned with shipping and receiving goods. Worker functions include: handling goods shipped and received; copying and recording details of shipments; computing amounts of shipments; and compiling data for documents. Work activities include: assembling, packing, addressing, stamping, loading and shipping goods; tracing and expediting delayed shipments and receiving, unpacking, sorting, verifying and recording incoming goods.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply instructions and procedures for shipping and receiving goods, and reasoning ability to make judgments concerning the selection of appropriate shipping routes and facilities; verbal ability to effectively communicate with others orally and in writing, to arrange for the shipment of goods, determine date of arrival of shipments or rectify damages or shortages; numerical ability to count and sort articles, and to perform arithmetic computations involving the use of fractions and decimals, for shipping bills, and storage and demurrage charges; clerical perception for details when comparing quantities and identification numbers on invoices; eye-hand-finger co-ordination to rapidly and accurately sort and handle goods; manual dexterity to grasp, place and turn articles when loading, packing and unpacking shipments; strength to perform sedentary to medium work requiring lifting of items weighing up to twenty-five pounds; good vision for close-up work to distinguish size, colour and texture of goods.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: ten to twelve years of general education; from three months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to positions requiring higher skills and responsibility in their respective cluster. Those who have supervisory potential may advance to appropriate occupations in Unit Group 4150 SUPERVISORS: MATERIAL RECORDING, SCHEDULING AND DISTRIBUTING OCCUPATIONS. See also Chapter 410, CLERICAL SUPERVISORS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to some related clerical positions requiring similar skills in Major Group 41, CLERICAL AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

4153-110	IMPORT-FREIGHT CLERK	4153-126	SHIPPING CLERK
4153-114	EXPORT-BOOKING CLERK	4153-130	CARGO-LOCATION MAN
4153-118	SHIPPING AND RECEIVING CLERK	4153-134	CLAIM CLERK, LOST OR DAMAGED GOODS
4153-122	RECEIVING CLERK		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	$\underline{3}$	$\underline{3}$	4	3	$\underline{3}$	$\underline{3}$	4	$\underline{4}$	5	5	S-M47	I	3	5-4	12	150
					4		4	3									

4153-B SHIPPING AND RECEIVING CLERKS

467, 487, 567, 587

WORK PERFORMED: This chapter includes occupations concerned with shipping and receiving goods. Worker functions include : handling goods shipped and received; copying and recording details of shipments; computing amounts of shipments; and compiling data for documents. Work activities include: assembling, packing, addressing, stamping, loading and shipping goods; tracing and expediting delayed shipments and receiving, unpacking, sorting, verifying, and recording incoming goods.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply instructions concerning shipping, receiving, and issuing baggage, allocating products to driver-salesmen, and preparing delivery instructions; numerical ability to sort and count articles rapidly, and to make change; clerical perception to note pertinent detail in delivery sheets, routing slips and identification labels; eye-hand-finger co-ordination to sort and handle goods while reading and completing shipping documents; manual dexterity to grasp, place and turn articles when loading, packing or unpacking items; strength to perform light to heavy work, such as lifting and carrying sacks of materials and baggage weighing up to 50 pounds, and pushing hand trucks loaded with cartons weighing up to 1,500 pounds; agility to stoop, kneel or crouch when moving boxes of material from shelves or storage areas, and when handling baggage and parcels; visual acuity to read information, and to note differences in colour and texture, and a good field of vision when searching for articles in storage areas.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: eight to ten years of general education; from one to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to positions requiring higher skills and responsibility in their respective cluster, or from Cluster B to Cluster A. Those who have supervisory potential may advance to appropriate occupations in Unit Group 4150, SUPERVISORS: MATERIALS RECORDING, SCHEDULING AND DISTRIBUTING OCCUPATIONS. See also Chapter 410, CLERICAL SUPERVISORS for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this cluster may transfer to some related clerical positions requiring similar skills in Major Group 41 CLERICAL AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

4153-138	BAGGAGEMAN	4153-146	VAULTMAN
4153-142	ROUTE SUPPLY AND RETURN MAN	4153-150	SORTING AND ROUTING CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	3	4	4	4	4	5	L-H34567	I	3-2	3-2	123	20
	3					4	3				4	M347					30

4155 - STOCK CLERKS AND RELATED OCCUPATIONS

367, 387, 487, 584, 587, 687

WORK PERFORMED: This chapter includes occupations concerned with receiving, storing and distributing supplies, material and equipment, taking inventories, estimating future requirements, keeping records and pricing and requisitioning stock. Work functions include: compiling and comparing stock records to prepare requisitions, maintain inventories and check lists, and handling supplies manually, or using special material handling devices to assist in moving, lifting and carrying items. Work activities include: preparing quantity and delivery schedules of materials and parts; identifying items by part number and nomenclature for requisition and purchase; preparing purchase orders and maintaining records of items purchased; receiving, storing and issuing supplies, material and equipment, and maintaining stock location systems and perpetual inventories of supplies and equipment issued.

APTITUDES AND CAPACITIES: learning ability to understand and apply the basic principles and procedures of record keeping, inventory control and stock requisitioning; verbal ability to present information clearly, either orally or in writing, when ordering supplies, allocating parts and material to specific departments and explaining shortages or discrepancies; numerical ability to perform arithmetic calculations quickly and accurately when preparing inventories, estimating requirements, pricing stock and maintaining stock balances on ledger cards; clerical perception to observe pertinent detail in verbal or tabular material, such as comparing part numbers to idenentical numbers on shop orders and recording data related to physical inventories for stock, tools and equipment; ability to perform light to medium work requiring lifting of packages up to fifty pounds and pushing packages and parts weighing up to one hundred pounds; ability to stoop, kneel or crouch when packing, piling and storing materials, parts and equipment; ability to reach, handle finger or feel textiles, hardware and other items to determine size, shape and texture; near visual acuity to read requisitions, locate stock and examine materials for identifications, size, colour, defects and other characteristics.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; three months to two years of on-the-job training, or one to two years of related experience as a stock boy or order filler, and a short period of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced worker may advance to other positions within this chapter requiring higher skills and responsiblity. Those who have supervisory potential may advance to appropriate occupations in Unit Group 4150 SUPERVISORS: MATERIAL RECORDING, SCHEDULING AND DISTRIBUTING OCCUPATIONS. See also Chapter 410 CLERICAL SUPERVISORS for qualifications profile.

TRANSFER POSSIBILITIES: Stock Clerks' positions are often entrance level jobs, and provide opportunity to learn about the business of a particlar establishment. This practice creates opportunities for transfer to other occupations in Minor Group 415, MATERIAL RECORDING, SCHEDULING AND DISTRIBUTING OCCUPATIONS.

OCCUPATIONAL TITLES:

4155-110	PRODUCTION-SUPPLY CLERK
4155-114	PARTS LISTER
4155-118	PROPERTIES CUSTODIAN
4155-122	PURCHASING CLERK
4155-126	STOREMAN
4155-130	STOCK-RECORDS CLERK
4155-134	MAGAZINE KEEPER
4155-138	PRESCRIPTION CLERK, OPTICAL GOODS
4155-142	TOOL-CRIB ATTENDANT
4155-146	INVENTORY CLERK
4155-150	SALVAGE CLERK
4155-154	LABORATORY CLERK
4155-158	KITCHEN-STOCK CLERK
4155-162	CHECKER, INVOICE AND ORDER
4155-166	MAIL-ORDER FILLER
4155-170	TOOTH CLERK
4155-174	TRANSFORMERS-STOCKROOM MAN
4155-178	LINEN-ROOM ATTENDANT
4155-182	CAR SUPPLIER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3 4	3 4	4 3	4	4 3	3	4	4	4	5	4 5	L-M347	I	4-2	6-3	13	20

4157 - WEIGHERS

364, 464, 484, 584

WORK PERFORMED: This chapter includes occupations concerned with weighing materials, products, railway cars and other vehicles and keeping relevant records. Worker functions include: performing arithmetic computations; recording, transcribing, entering or posting data; and manipulating levers and weights, or dials, push buttons and other controls of weigh scales depending upon the object or material to be weighed. Work activities include: weighing and inspecting motor vehicles at highway weighing stations to determine compliance with statutory weight limits and other provisions of provincial law; reading indicators to determine gross weights; weighing drug preparations, using fine scales and analytical or torsion balances; weighing railway cars using electronic beam scales; weighing and computing numbers of small parts using ratio-balance scales; and recording details of goods weighed, and submitting reports and returns.

APTITUDES AND CAPACITIES: Weighers require: learning ability to understand the operation of various types of weigh scales or balances, and to apply the regulations concerning the weighing of vehicles and materials; numerical ability to carry out arithmetic processes quickly and accurately to compute weights of vehicles or containers, obtain the net weight or to estimate quantity-by weight; form perception to make visual comparisons and discriminations when weighing containers, materials and parts and to observe impurities or other differences such as lumps, discolouration or spoilage; clerical perception to correctly read figures when weighing or recording weight, grade and price of material, and to avoid computational errors; strength to perform medium work, such as that required to lift weights up to fifty pounds and to tilt boxes weighing from fifty to one hundred and fifty pounds, when loading them on or off conveyors or scale platforms; capacity to reach to operate controls on scales or balances, and to move material; visual acuity (near and far) and accommodation for reading figures on scale indicators, charts or tickets, and for observing conveyor operations.

TRAINING AND ENTRY REQUIREMENTS: Weighers normally require: six to nine years of general education; from four weeks up to six months of on-the-job training, depending on the complexity of the work.

ADVANCEMENT POSSIBILITIES: Experiences workers with supervisory abilities may advance to appropriate occupations in Unit Group 4150, SUPERVISORS: MATERIAL RECORDING, SCHEDULING AND DISTRIBUTING OCCUPATIONS. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfers are limited. Some weighers with a knowledge of production processes may transfer to processing or fabricating occupations in their establishments.

OCCUPATIONAL TITLES:

4157-110	HIGHWAY-SCALE OPERATOR
4157-114	WEIGHER, TRUCK
4157-118	WEIGHER, DRUG AND TOILET GOODS
4157-122	WEIGHER, RAILWAY CAR
4157-126	WEIGHER-COUNTER
4157-130	WEIGHER, PRODUCTION
4157-134	WEIGHER
4157-138	TARE MAN
4157-142	WEIGHER, LIVESTOCK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMP.
	$\underline{4}$ 3	3	$\underline{4}$ $\underline{3}$	4	$\underline{4}$	$\underline{4}$ $\underline{3}$	4 3	4 3	4	5	5	L-M47	I	3-2	4-2	139	20Y

4161A - MEDICAL-RECORD LIBRARIANS

WORK PERFORMED: This chapter includes occupations concerned with recording, classifying and filing medical records and related data in hospitals and other medical institutions. Worker functions include: compiling medical records and providing information to medical staff. Work activities include: examining, classifying, coding, sorting, typing and filing medical records, correspondence and other data; up-dating files; searching for and providing information and preparing special reports.

APTITUDES AND CAPACITIES: Medical-Record Librarians require: learning ability to acquire and apply a thorough knowledge of the principles governing the coding, classifying, compiling and recording of data for medical records and statistical reports; verbal ability to understand the meanings of medical terminology and ideas associated with them, and to use them effectively when communicating orally or in writing with medical personnel; clerical perception to note pertinent details in narrative or tabular materials, and to avoid errors in transcribing data from medical records, or when compiling statistics; eye-hand co-ordination and finger dexterity for typing and filing tasks; near-visual acuity and colour vision.

TRAINING AND ENTRY REQUIREMENTS: Medical-Record Librarians require: secondary school graduation, at the university entrance level, with an emphasis on science, mathematics, language and with proficiency in typing; completion of a medical-record librarians' course given at community colleges, for one to three years depending on the college; or completion of a course in a recognized school for medical-record librarians, in hospitals approved by the Canadian Associaton of Medical-Record Librarians, usually of one year's duration; or completion of a four-year course given at the University of Notre-Dame, Nelson, B.C., leading to a bachelor of science degree, medical-record. On completion of the training programs, candidates are eligible to write the examinations leading to registration and membership in the Canadian Association of Medical-Record Librarians.

ADVANCEMENT POSSIBILITIES: Medical-Record Librarians may advance to positions of greater responsibility in establishments where a grading system exists.

TRANSFER POSSIBILITIES: Medical-Record Librarians may transfer to Medical Secretary under 4111-110, SECRETARY, provided they take additional training required to qualify for this specialty.

OCCUPATIONAL TITLES:

4161-110 MEDICAL-RECORD LIBRARIAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	2	4	4	4	5	4	L4567	I	4	5	63	OY5

4161B-B LIBRARY AND FILE CLERKS

WORK PERFORMED: This chapter includes occupations concerned with recording, classifying and filing records, publications, correspondence, audio-visual and other data in libraries, and offices. Worker functions include: compiling and recording library and other office records; providing information to people concerning books, publications and other recorded data; and handling materials when filing documents, shelving books or displaying articles. Work activities include: examining, classifying, sorting and filing records, correspondence and other data; up-dating library catalogues, file indexes and records; searching for and providing information, and issuing, receiving, recording, sorting and shelving books, films and phonograph records.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply general office procedures and library indexing or classifying techniques; verbal ability, to comprehend terminology and to communicate effectively with users of library facilities; clerical perception to transcribe or check entries such as names, titles, and numbers, to file material in proper sequence, and to prepare accurate reports; capacity to climb ladders when shelving or retrieving books from high shelves or stacks; capacity to stoop or kneel when shelving or filing records and documents in cabinets or low shelves; near and far visual acuity and colour vision.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: eleven to twelve years of general education; from one month to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for experienced workers in this chapter may be to higher levels within the occupation. Some with supervisory ability may advance to 4160-110 SUPERVISOR, LIBRARY AND FILE CLERKS. See also Chapter 410, CLERICAL SUPERVISORS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations within this chapter, provided the necessary qualifications are met.

OCCUPATIONAL TITLES:

4161-122	FILE AND CLASSIFICATION CLERK	4161-134	FILE CLERK
4161-126	TAPE LIBRARIAN	4161-138	LIBRARY CLERK, FILMS AND RECORDINGS
4161-130	CUT MAN		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	3	4	4	4	4	4	L2347	I	4-3	5-3	13	OY
	4				3		3			5	5						20

4171 - RECEPTIONISTS AND INFORMATION CLERKS

364, 367, 368

WORK PERFORMED: This chapter includes occupations concerned with receiving and giving information to clients, customers and the general public in offices and establishments. Worker functions include: speaking to clients and customers to provide information on business or services; compiling and recording data; and operating office equipment, such as typewriters and adding machines. Work activities include: making appointments, maintaining files, and answering inquiries by telephone, by correspondence or in person.

APTITUDES AND CAPACITIES: Receptionists and Information Clerks require: learning ability to understand instructions and follow office procedures, and ability to exercise good judgment; verbal ability to communicate effectively with people at all levels, when giving or obtaining information; numerical ability for 4171-114 PRICE-INFORMATION CLERK to rapidly and accurately make computations for price quotations and bills; clerical perception to observe pertinent detail in written material, and to avoid errors when transcribing data; eye-hand-finger co-ordination to perform typing and filing duties, rapidly and accurately.

TRAINING AND ENTRY REQUIREMENTS: Receptionists and information clerks normally require: ten or more years of general education; up to one year of training in commercial subjects taken in the public school system or private business or secretarial college; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Receptionists and Information Clerks who have supervisory potential may advance to 4170-122 SUPERVISOR, RECEPTIONISTS AND INFORMATION CLERKS. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profile. Advancement may also be to more responsible clerical positions in Major Group 41, CLERICAL AND RELATED OCCUPATIONS.

TRANSFER POSSIBILITIES: Receptionists and Information Clerks may transfer to occupations within this chapter, or to similar occupations in a different environment, such as that of 4194-110 HOTEL CLERK or 4193-122 TRAVEL CLERK.

OCCUPATIONAL TITLES:

4171-110	HOSPITAL-ADMITTING CLERK	4171-118	RECEPTIONIST
4171-114	PRICE-INFORMATION CLERK	4171-122	INFORMATION CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	3	3 4	3 4	4	5	5	S-L4567	I	3	5-4	2	50

4172 - MAIL CARRIERS

WORK PERFORMED: This chapter includes occupations concerned with sorting and delivering mail according to specified routes. Worker functions include: handling mail, records and cash; and transcribing lists of registered mail and cash-on-delivery packages and recording changes of address. Work activities include: sorting mail according to predetermined routes; obtaining recepts for registered mail; and collecting money for cash-on-delivery packages.

APTITUDES AND CAPACITIES: Mail Carriers require: learning ability to understand and apply postal regulations and procedures and to acquire a good knowledge of delivery routes; numerical ability to perform arithmetic computations accurately when collecting money for cash-on-delivery packages and for deficient postage; clerical perception for activities such as deciphering handwriting; eye-hand-finger co-ordination to sort and distribute mail; manual dexterity to move the hands easily and skilfully in placing and turning motions; strength to lift and carry up to thirty-five pounds while walking or climbing stairs; agility to avoid hazards such as slippery sidewalks and stairways; adaptability to all weather conditions.

TRAINING AND ENTRY REQUIREMENTS: Mail Carriers normally require: a minimum of eight years of general education; and one to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Mail Carriers with supervisory potential may advance to 4170-110 SUPERVISOR, MAIL AND POSTAL CLERKS. See also Chapter 410, CLERICAL SUPERVISORS for qualifications profile.

TRANSFER POSSIBILITIES: Mail Carriers may transfer to occupations in Chapters 4173 MAIL AND POSTAL CLERKS; 4177 MESSENGERS; or 5193 DRIVER-SALESMEN if they possess the necessary qualifications.

OCCUPATIONAL TITLES:

4172-110 LETTER CARRIER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS
	4	4	4	4	4	3 4	3	4	3	4	4	M247	06	3	3	132	23

4173-B MAIL AND POSTAL CLERKS

387, 584, 587, 687

WORK PERFORMED: This chapter includes occupations concerned with distributing and processing mail in government and industry. Worker functions include: compiling information concerning postal transactions; computing postal costs and balancing daily totals; speaking to customers to answer inquiries concerning rates and procedures; handling mail to sort and bag it for delivery; and examining mail to ensure compliance with postal regulations and practices. Work activities include: weighing letters and parcels to determine postage; selling postage stamps and money orders; and registering and insuring mail.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply postal regulations and procedures; clerical perception to record data accurately, and to detect incorrect or incomplete addresses, when sorting letters and parcels; eye-hand co-ordination to sort and place mail in appropriate bin or bag, and to stamp mail; manual dexterity to sort mail, and use marking devices and postage meters; finger dexterity to tie mail in bundles, and to fold and insert letters or circulars into envelopes.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: eight to eleven years of general education; two to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement may be from some occupations in this cluster to occupations in Cluster A.

TRANSFER POSSIBILITIES: Workers may transfer to some occupations in Group 4179 RECEPTION, INFORMATION, MAIL AND MESSAGE DISTRIBUTION OCCUPATIONS, N.E.C.; Chapter 4197 GENERAL OFFICE CLERKS; or Group 4199 OTHER CLERICAL AND RELATED OCCUPATIONS, N.E.C. where similar skills are required.

OCCUPATIONAL TITLES:

4173-114	EXPRESS CLERK
4173-122	PARCEL-POST CLERK
4173-126	MAIL CLERK
4173-130	MAIL SORTER
4173-134	MAILER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	4	3	4	3	4	5	5	M-H47	I	3-2	4-3	31	23Y
	4	3	3			4	3		3	4							

4175 - TELEPHONE OPERATORS

464, 564, 664

WORK PERFORMED: This chapter includes occupations concerned with operating public and private telephone switchboards to relay incoming, inter-office and outgoing calls. Worker functions include: operating switchboards to connect calls; and speaking to callers to obtain names or numbers of appropriate parties, give information and take messages. Work activities include: observing switchboards for calls and making appropriate connections; ascertaining toll charges according to time recorded; supplying information and assistance for clients; taking special action in cases of emergencies; and keeping related records.

APTITUDES AND CAPACITIES: Telephone Operators require: learning ability to understand and apply techniques of telephone switchboard operations; verbal ability to understand callers requests and to give information clearly, such as rates, messages and numbers; form perception to select appropriate cord or switch to make switchboard connections; clerical perception to observe details when consulting charts to determine telephone charges and when searching for numbers in directories; eye-hand-finger co-ordination to make connections and search through telphone directories and charts; finger dexterity to rapidly turn pages of telephone directories, dial numbers or press buttons, and file call records; manual dexterity to operate switchboard; ability to reach forward to connect switchboard lines and handle directories; capacity to hear caller's requests under various line conditions; near visual acuity to read charts, directories and time-recording devices.

TRAINING AND ENTRY REQUIREMENTS: Telephone Operators normally require: ten years of general education; and up to three months on-the-job training under the guidance of a supervisor.

ADVANCEMENT POSSIBILITIES: Telephone Operators with supervisory ability may advance to 4170-126 SUPERVISOR, TELEPHONE OPERATORS. See also Chapter 410, CLERICAL SUPERVISORS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer is normally to occupations within this chapter and to some occupations in Group 4199, OTHER CLERICAL AND RELATED OCCUPATIONS, N.E.C. Some telephone operators may transfer to occupations in Chapter 4171, RECEPTIONISTS AND INFORMATION CLERKS.

OCCUPATIONAL TITLES:

4175-110	TELEPHONE OPERATOR	4175-118	TELEPHONE-ANSWERING-SERVICE OPERATOR
4175-114	TELEPHONE OPERATOR	4175-122	DIRECTORY-ASSISTANCE OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	3	3	3	3	5	4	S4567	I	3	3	23	25 253

4177 - MESSENGERS

367, 564, 673, 674

WORK PERFORMED: This chapter includes occupations concerned with delivering such items as messages, mail, securities and telgrams on foot, bicycle or public conveyance. Worker functions include: serving various personnel by delivering mail and messages; handling mail, cheques, securities, documents and merchandise; compiling lists of items to be collected or delivered; and recording details of items collected and delivered. Work activities include: running errands; sorting, delivering and collecting mail, packages, securities and messages; distributing office supplies to staff, relaying telegrams by telephone; and collecting money for cash-on-delivery packages.

APTITUDES AND CAPACITIES: Messengers require: learning ability to understand and follow work procedures and instructions for deliveries and messages; verbal ability, especially important for 4177-114 TELEPHONE MESSENGER, TELEGRAMS to read telegrams, promote sales, quote and explain rates, and aid customer in preparing messages; numerical ability to carry out arithmetic processes quickly and accurately for billing customers, and collecting money from clients for messages and cash-on-delivery orders; clerical perception to observe details such as addresses, instructions and digits on rate-classification forms; eye-hand-foot co-ordination for messengers riding bicycles; capacity to withstand exposure to all kinds of weather conditions for those whose work is out-of-doors.

TRAINING AND ENTRY REQUIREMENTS: Messengers normally require: eight to ten years of general education; on-the-job training ranging from a short period of demonstration to six months, depending on the complexity of the employer's organization. For messengers handling valuables, bonding is normally required.

ADVANCEMENT POSSIBILITIES: Messengers who possess supervisory ability may advance to 4170-118 SUPERVISOR, MESSENGERS. See also Chapter 410, CLERICAL SUPERVISORS for qualifications profile. Those who acquire clerical skills may advance to clerical work, such as 4161-134 FILE CLERK, or to some occupations in Chapters 4155, STOCK CLERKS AND RELATED OCCUPATIONS; 4141, OFFICE MACHINE OPERATORS; and 4197, GENERAL OFFICE CLERKS.

TRANSFER POSSIBILITIES: Transfer may be to other occupations within this chapter, and to 4179-130 OFFICE BOY.

OCCUPATIONAL TITLES:

4177-110	MESSENGER, BANK
4177-114	TELEPHONE MESSENGER, TELEGRAMS
4177-118	MESSENGER
4177-122	DELIVERY BOY
4177-126	TELEGRAPH MESSENGER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	$\underline{4}$	4	4	$\underline{3}$	4	4	4	$\underline{4}$	4	S-M24567	B234	3-2	4-2	31	23
	3	$\underline{3}$				4				5	5						

4191-B COLLECTORS

WORK PERFORMED: This chapter includes occupations concerned with collecting payments on instalments or overdue accounts. Worker functions include: compiling data concerning accounts to be collected; computing balance due; and speaking to clients to solicit payment. Work activities include: tracing location of debtors by phone, in person, or by letter; preparing reports on investigations of lapsed accounts; and maintain records of accounts collected and those requiring further action.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply the procedures used in collection activities, and sound judgment when dealing with people; verbal ability to write clear and concise reports and letters and to communicate effectively with clients; numerical ability to make arithmetic calculations quickly and accurately; clerical perception to avoid errors when posting and computing accounts, corresponding with clients and preparing reports.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: ten to twelve years of general education; and up to one month of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may advance to occupations in Cluster A.

TRANSFER POSSIBILITIES: Transfer is to occupations within the chapter or to some occupations in Chapter 4197, GENERAL OFFICE CLERKS, or Group 4199 OTHER CLERICAL AND RELATED OCCUPATIONS, N.E.C. Some collectors may also transfer to several occupations in Group 4139 BOOKKEEPING, ACCOUNT-RECORDING AND RELATED OCCUPATIONS, N.E.C., if they have the necessary qualifications.

OCCUPATIONAL TITLE:

4191-122 CLERK, CUSTOMER SERVICE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	3	4	4	4	5	5	L567	I	2	2	23	52

4192 - ADJUSTERS, CLAIM

118, 168, 367, 368

WORK PERFORMED: This chapter includes occupations concerned with appraising, investigating, validating and settling claims due to loss, accident and disaster or other cause. Worker functions include: co-ordinating investigations and subsequent settlement or litigation of cases; analyzing causes of accident, loss, damage, or reason for claim to determine liability; compiling information on cases; negotiating settlements; and speaking to claimants or representatives. Work activities include: reviewing and examining claims; determining insurance coverage or allowance due; estimating value of lost or damaged articles; preparing reports of findings; arranging settlements; and recommending litigation.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply company practices and procedures for adjusting claims, investigating and settling cases and complaints about unsatisfactory service or defective merchandise; verbal ability to understand and use language effectively when interviewing claimants, witnesses and others involved, preparing reports of findings and negotiating settlements; numerical ability to accurately carry out arithmetic processes when determining amount of liability, calculating allowances, payments or reimbursements monitoring claim costs or estimating value of lost or damaged articles; spatial perception to visualize cause of defect in tires, required for 4192-126 TIRE-ALLOWANCE CLERK; form perception to determine if motor-vehicle parts are defective as in dealer's claim, required for 4192-114 SERVICE REPRESENTATIVE; clerical perception to perceive pertinent detail in verbal or tabular material when reading claims, policies, and reports.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: eleven to thirteen years of general education; correspondence courses, usually taken over three years, sponsored by the Insurance Institute of Canada plus one year of on-the-job training, or equivalent experience for 4192-110 CLAIM ADJUSTER; or a combination of on-the-job training and related experience of up to four years for the remaining occupations. Independent adjusters must have a provincial adjuster's licence; company adjusters are required to be licensed only in some provinces.

ADVANCEMENT POSSIBILITIES: Workers with supervisory ability may advance to 4190-110 SUPERVISOR, CLAIMS ADJUSTERS. See also Cahpter 410, CLERICAL SUPERVISORS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations within the chapter and to other clerical positions such as those in Chapter 4191, COLLECTORS and 4199, OTHER CLERICAL AND RELATED OCCUPATIONS, N.E.C., for those with the necessary qualifications.

OCCUPATIONAL TITLES:

4192-110	CLAIM ADJUSTER	4192-122	ADJUSTMENT CLERK
4192-114	SERVICE REPRESENTATIVE	4192-126	TIRE-ALLOWANCE CLERK
4192-118	CLAIM EXAMINER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	4	4	4	5	5	S-M567	I-B	4-3	7-4	261	590
				3	3	4											

4193 - TRAVEL CLERKS, TICKET, STATION & FREIGHT AGENTS

168, 367, 368

WORK PERFORMED: This chapter includes occupations concerned with clerical duties related to travel and transportation. Worker functions include: co-ordinating customers' itineraries; compiling information regarding accommodations, travel routes, reservations, connections and freight or express shipments; preparing reports of transactions; and speaking to clients to determine and discuss travel and transportation requirements. Work activities include: arranging itineraries and tours; reserving accommodations for travellers; selling airline, bus, railroad and steamship tickets; accepting and releasing express consignments; and routing air-freight shipments.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply procedures and practices used in travel and transportation transactions such as air, train, bus and ship routes and rates, accommodations available to travellers, medical and visa requirements, regulations covering import and export of goods, customs clearances, tariffs and duty rates; verbal ability to understand and clearly explain itineraries, connections, rates, tours, points of interest, services and shipping information, and to answer inquiries and make suggestions by phone, mail or in person; numerical ability to carry out arithmetic processes rapidly and accurately when calculating fares, hotel and freight rates; clerical ability to perceive pertinent detail in verbal or tabular material when using reference guides, timetables and tariff books; capacity to lift and carry up to fifty pounds is required for 4193-126 CARGO AGENT and 4193-130 RAIL-EXPRESS CLERK when checking and weighing baggage or shipments, sorting parcels and assembling cargo.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: one week to six months of on-the-job training, depending upon the complexity of the occupation; for 4193-110 TRAVEL AGENT, on-the-job training and related experience for one year.

ADVANCEMENT POSSIBILITIES: Advancement may be from 4193-114 RESERVATION CLERK and 4193-122 TRAVEL CLERK to 4193-110 TRAVEL AGENT. Some travel agents may advance to 4190-130 SUPERVISOR, TRAVEL CLERKS, if they have supervisory abilities and leadership potential. Travel agents may also enter into business through formation of their own agency, or in partnership with others.

TRANSFER POSSIBILITIES: Transfer is within the chapter or to some other public contact occupations such as 4194-110 HOTEL CLERK or to some occupations in Chapter 4197 GENERAL OFFICE CLERKS. 4193-126 CARGO AGENT and 4193-130 RAIL-EXPRESS CLERK, may transfer to some occupations in Chapter 4153, SHIPPING AND RECEIVING CLERKS, if they possess the necessary qualifications.

OCCUPATIONAL TITLES:

4193-110	TRAVEL AGENT
4193-114	RESERVATION CLERK
4193-118	TICKET CLERK
4193-122	TRAVEL CLERK
4193-126	CARGO AGENT
4193-130	RAIL-EXPRESS CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	4	4	4	5	5	S-M4567	I	4-3	5-3	26	501
			4													23	50

4194 - HOTEL CLERKS

WORK PERFORMED: This chapter includes occupations in hotels and related establishments concerned with accommodating guests. Worker functions include: compiling information regarding hotel services; and speaking to guests to answer inquiries and to inform them of hotel services, room accommodations and billings. Work activities include: registering guests; renting rooms; checking keys and valuables; receiving and distributing messages and mail; and presenting statements to departing guests for payment.

APTITUDES AND CAPACITIES: Hotel Clerks require: learning ability to understand and apply procedures for accommodating guests in hotels, and to acquire knowledge of available services; verbal ability to deal with hotel guests, to clearly answer their inquiries and requests; numerical ability to carry out financial transactions with hotel guests; clerical perception for details when recording guests' reservations and messages, and to avoid errors when presenting statements to departing guests; ability to stand much of the time while reaching for and handling items such as account records, mail messages and room keys.

TRAINING AND ENTRY REQUIREMENTS: Hotel Clerks normally require: ten to twelve years of general education; and three to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Hotel Clerks may advance to 6130-114 MANAGING SUPERVISOR, HOTEL, MOTEL AND LODGING HOUSE or to 4190-122 SUPERVISOR, HOTEL CLERKS, if they have supervisory potential, leadership qualities and the required experience. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to some occupations in Chapter 4193, TRAVEL CLERKS, TICKET, STATION AND FREIGHT AGENTS and to some occupations in Chapter 4171, RECEPTIONISTS AND INFORMATION CLERKS.

OCCUPATIONAL TITLES:

4194-110 HOTEL CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	4	4	4	5	5	L456	I	3	4	23	51

4195 - PERSONNEL CLERKS

WORK PERFORMED: This chapter includes occupations concerned with clerical duties relating to personnel administration. Worker functions include: interviewing applicants to obtain information, discuss employment opportunities and company policies and benefits; and compiling and recording information on prospective or current company employees concerning recruitment, training, promotion, attendance, retirement and discharge. Work activities include: screening applicants by phone, letter or in person; referring qualified applicants to hiring officer; writing letters to references indicated on candiate's application; and maintaining personnel files.

APTITUDES AND CAPACITIES: Personnel Clerks require: learning ability to understand and apply company employment and personnel policies and procedures; verbal ability to skilfully interview and correspond with applicants; clerical perception to observe pertinent detail and avoid errors when completing employee records and correspondence.

TRAINING AND ENTRY REQUIREMENTS: Personnel Clerks normally require: twelve years of general education; three to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced Personnel Clerks may advance to higher levels of responsibility, such as to 1174-134 EMPLOYMENT INTERVIEWER. Those with supervisory ability may advance to 4190-126 SUPERVISOR, PERSONNEL CLERKS. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profiles.

TRANSFER POSSIBILITIES: Transfer may be to other occupations such as 4171-122 INFORMATION CLERK, 4193-122 TRAVEL CLERK, 4197-114 CLERK, GENERAL OFFICE and 4199-166 INVESTIGATOR that require similar skills.

OCCUPATIONAL TITLES:

4195-110 PERSONNEL CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	4	4	4	5	4	S4567	I	4	4	26	59Y

4197 - GENERAL OFFICE CLERKS 367, 384, 464, 567

WORK PERFORMED: This chapter includes occupations concerned with performing any combination of clerical duties of a general nature. Work functions include: compiling and copying information, and computing payments and balancing accounts. Work activities include: typing, filing and recording information such as sales contracts, tax transactions and correspondence; answering telephones; taking orders; arranging appointments; interviewing and referring callers; and ordering supplies.

APTITUDES AND CAPACITIES: General Office Clerks require: learning ability to understand and apply office systems and procedures; verbal ability to answer telephones, to arrange appointments for clients, interview customers and relay messages, and to direct visitors to appropriate person or location; numerical ability to rapidly and accurately compute payments, resolve discrepancies in accounts, and calculate price of merchandise, sales tax, fees, insurance premiums and interest; clerical ability to avoid errors when typing and filling in forms; ability to co-ordinate eyes and hands rapidly when operating office machines such as typewriter and adding machine; finger dexterity to type, file, and manipulate clerical work aids.

TRAINING AND ENTRY REQUIREMENTS: General Office Clerks normally require: ten to twelve years of general education; up to one academic year of commerical courses in vocational or commercial schools; and up to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced General Office Clerks with supervisory ability may advance to 4190-118 SUPERVISOR, GENERAL OFFICE CLERKS. See also Chapter 410, CLERICAL SUPERVISORS, for qualifications profile.

TRANSFER POSSIBILITIES: General Office Clerks may transfer to other occupations that require similar skills in Minor Groups 416, LIBRARY, FILE AND CORRESPONDENCE CLERKS AND RELATED OCCUPATIONS; 417, RECEPTION, INFORMATION, MAIL AND MESSAGE DISTRIBUTION OCCUPATIONS; and 419, OTHER CLERICAL AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

4197-110	MANIFEST CLERK
4197-114	CLERK, GENERAL OFFICE
4197-118	CONTRACT CLERK, MOTOR VEHICLE
4197-126	PROPERTY CLERK
4197-130	OFFICE CLERK
4197-134	POLICE-STATION CLERK
4197-138	TAX CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	3	4	4	3	3	4	4	5	4	S-L4567	I	4-3	5-2	31	20Y
		3	4					3									2Y

510-A MANAGING SUPERVISORS AND SUPERVISORS, SALES OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with conducting businesses engaged in selling commodities or services, on own or owners' behalf or in partnership; and occupations concerned with supervising workers engaged in selling activities. Worker functions include: planning and organizing operations of establishments on the basis of data obtained from studies of market conditions, sales reports and other factors; and defining or interpreting procedures, assigning specific duties to staff, maintaining harmonious relations, and promoting efficiency within organization. Work activities include: estimating demands for goods or services; planning layouts, displays or sales campaigns; hiring and training workers; preparing sales records and reports; attending seminars or meetings to keep abreast of new market developments or sales techniques, requisitioning merchandise, supplies and equipment; investigating customer complaints; recommending or initiating personnel actions such as promotions, transfers and disciplinary measures; conferring with workers to resolve complaints and grievances; and instituting or suggesting measures to improve work methods, equipment, service or working conditions.

APTITUDES AND CAPACITIES: learning ability to understand and apply management and supervisory principles and practices and the technqiues associated with the type of sales work supervised; and reasoning ability to effectively plan, organize and expedite work activities; verbal ability to comprehend sales reports and market information and to communicate effectively with superiors, subordinates and clients, both orally and in writing; numerical ability to compile sales figures in order to prepare reports and determine commissions; clerical perception to detect errors in sales reports, contracts inventory control records and promotional material.

TRAINING AND ENTRY REQUIREMENTS: Workers are usually selected from employees who have demonstrated leadership qualities and initiative in lower level jobs. The normal requirement is 10 to 16 years of general or commerical education; and 1 to 10 years in related subordinate positions or on-the-job training, depending on the position involved. Some employers provide formalized courses in such subjects as business management, marketing sales, work simplification or job relationships, or the worker may acquire training on his own initiative through university extension or other courses. Depending on the nature of the occupation, the worker may be required to possess a licence to sell.

ADVANCEMENT POSSIBILITIES: Workers who demonstrate superior ability and initiative, may advance to higher supervisory, managerial or executive positions, or may become partners or owners of establishments in their field of work. They may advance to occupations such as 1137-118 MANAGER, SALES; 1141-110 MANAGER, MERCHANDISE PURCHASING; and 1149-142 MANAGER, REAL ESTATE. See Major Group 11, MANAGERIAL, ADMINISTRATIVE AND RELATED OCCUPATIONS for additional promotional possibilities.

TRANSFER POSSIBILITIES: Transfer may occur to similar positions in other departments, branches or establishments or to other occupations requiring similar skills, such as 1171-182 SECURITIES COUNSELLOR, 1171-184 INVESTMENT ANALYST, 1175-110 PURCHASING OFFICER, BUSINESS SERVICES, and 1179-154 SALES-PROMOTION ADMINISTRATOR. See Major Group 11, MANAGERIAL, ADMINISTRATIVE AND RELATED OCCUPATIONS for additional transfer possibilities.

OCCUPATIONAL TITLES

5130-114 MANAGING SUPERVISOR, RETAIL STORE
5130-118 MANAGING SUPERVISOR, SERVICE STATION
5130-122 MANAGING SUPERVISOR, WHOLESALE ESTABLISHMENT
5170-110 INVESTMENT BROKER
5170-114 MUTUAL-FUND BROKER
5170-118 GRAIN BROKER
5170-126 MANAGING SUPERVISOR, REAL ESTATE

QUALIFICATIONS PROFILE

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	4	4	3	4	4	4	5	5	S-L56	I	5-4	8-6	256	45091
		3	2	3													

WORK PERFORMED: This chapter includes occupations concerned with conducting businesses engaged in selling commodities or services, on own or owners' behalf or in partnership; and occupations concerned with supervising workers engaged in selling activities. Worker functions include: planning and organizing operations of establishments on the basis of data obtained from studies of market conditions, sales reports and other factors; and defining or interpreting procedures, assigning specific duties to staff, maintaining harmonious relations, and promoting efficiency within organization. Work activities include: estimating demands for goods or services; planning layouts, displays or sales campaigns; hiring and training workers; preparing sales records and reports; attending seminars or meetings to keep abreast of new market developments or sales techniques; requisitioning merchandise, supplies and equipment; investigating customer complaints; recommending or initiating personnel actions such as promotions, transfers and disciplinary measures; conferring with workers to resolve complaints and grievances; and instituting or suggesting measures to improve work methods, equipment, service or working conditions.

APTITUDES AND CAPACITIES: learning ability to understand and apply management and supervisory principles and practices, and the techniques associated with the type of sales work supervised; and reasoning ability to effectively plan, organize and expedite work activities; verbal ability to comprehend sales reports and market information and to communicate effectively with superiors, subordinates and clients, both orally and in writing; numerical ability to compile sales figues in order to prepare reports and determine commissions; clerical perception to detect errors in sales reports, contracts, inventory control records and promotional material.

TRAINING AND ENTRY REQUIREMENTS: Workers are usually selected from employees who have demonstrated leadership qualities and initative in lower level jobs. The normal requirements is 10 to 16 years of general or commerical education; and 1 to 10 years in related subordinate positions or on-the-job training, depending on the positions involved. Some employers provide formalized courses in such subjects as business management, marketing, sales, work simplification or job relationships, or the worker may acquire training on his own initiative through university extension or other courses. Depending on the nature of the occupations, the worker may be required to possess a licence to sell.

ADVANCEMENT POSSIBILITIES: Workers who demonstrate superior ability and initiative may advance to higher supervisory, managerial or executive positions, or may become partners or owners of establishments in their field of work. They may advance to occupations such as 1137-118 MANAGER, SALES; 1141-110 MANAGER, MERCHANDISE PURCHASING; and 1149-142 MANAGER, REAL ESTATE. See Major Group 11, MANAGERIAL, ADMINISTRATIVE AND RELATED OCCUPATIONS for additional promotional possibilities.

TRANSFER POSSIBILITIES: Transfers may occur to similar positions in other departments, branches or establishments or to other occupations requiring similar skills, such as 1171-182 SECURITIES COUNSELLOR, 1171-184 INVESTMENT ANALYST, 1175-110 PURCHASING OFFICER, BUSINESS SERVICES and 1179-154 SALES-PROMOTION ADMINISTRATOR. See Major Group 11, MANAGERIAL, ADMINISTRATIVE AND RELATED OCCUPATIONS for additional transfer possibilities.

OCCUPATIONAL TITLES:

5130-110 DEPARTMENT SUPERVISOR, SUPERMARKET
5130-126 SUPERVISOR, DOOR-TO-DOOR SALESMEN
5130-130 SUPERVISOR, NEWSPAPER SALES
5170-120 SUPERVISOR, ADVERTISING SALESMEN
5170-122 SUPERVISOR, LIFE INSURANCE SALESMEN
5190-110 SUPERVISOR, DRIVER-SALESMEN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	4	4	4	5	5	S-L56	I	5-3	7-5	25	45
	2	2	2								4						

5131 - TECHNICAL SALESMEN AND RELATED ADVISERS

153, 158, 258, 358

WORK PERFORMED: This chapter includes occupations concerned with selling scientific, mechanical, electrical, electronic and chemical commodities, and light, heat power and associated services. Worker functions include: persuading customers to buy products or services, and explaining their merits; determining time, place and sequence of operations based on an analysis of data related to customers' facilities and requirements; compiling data to recommend products or services; and computing costs of installing new equipment or services. Work activities include: preparing reports to show reduced costs or increased efficiency resulting from proposed changes; providing specialized information about the composition, installation, utilization and maintenance of products or services; and preparing or arranging for the preparation of plans and operating specifications.

APTITUDES AND CAPACITIES: learning ability to understand, interpret and evaluate technical data and to acquire and apply a knowledge of the persuasive techniques of selling; verbal ability to understand meanings and uses of technical terminology, and ideas associated with them, and to communicate effectively with people; numerical ability to make mathematical computations quickly and accurately for orders and estimates; spatial perception to visualize the layout and functioning of equipment in plant installations and to visualize the effects of modifications to equipment or plant facilities; clerical perception to see pertinent detail in reference material such as diagrams, charts, catalogues, manuals and specifications.

TRAINING AND ENTRY REQUIREMENTS: a university degree in a technical discipline; OR completion of secondary school plus several years of technical education at a vocational institution; and a short period of in-plant training followed by several months of on-the-job training; and either previous sales experience; OR extensive sales-oriented training provided by the employer.

ADVANCEMENT POSSIBILITIES: Workers who have potential for supervision can advance to positions related in their field, Unit Group 5130 SUPERVISORS: SALES OCCUPATIONS, COMMODITIES. See also Chapter 510 MANAGING SUPERVISORS AND SUPERVISORS, SALES OCCUPATIONS, for qualifications profile;

TRANSFER POSSIBILITIES: Workers may transfer to other occupations within this chapter, and also to some related occupations requiring similar skills in Chapter 5133, COMMERCIAL TRAVELLERS or Chapter 5177 BUSINESS SERVICES SALESMEN.

OCCUPATIONAL TITLES:

5131-110	SALES ENGINEER, LIGHT, HEAT AND POWER
5131-114	TECHNICAL SALESMAN, ELECTRONIC-DATA-PROCESSING
5131-118	TECHNICAL SALESMAN, AIRCRAFT
5131-122	TECHNICAL SALESMAN, AGRICULTURAL EQUIPMENT AND SUPPLIES
5131-126	TECHNICAL SALESMAN, CONSTRUCTION EQUIPMENT AND SUPPLIES
5131-130	TECHNICAL SALESMAN, ELECTRONIC EQUIPMENT
5131-134	TECHNICAL SALESMAN, INDUSTRIAL MACHINERY AND EQUIPMENT
5131-138	TECHNICAL SALESMAN, MEDICAL-DENTAL EQUIPMENT AND SUPPLIES
5131-142	TECHNICAL SALESMAN, RAILROAD EQUIPMENT AND SUPPLIES
5131-146	SALES REPRESENTATIVE, LIGHT, HEAT AND POWER
5131-150	TECHNICAL SALESMAN, CHEMICALS
5131-154	TECHNICAL SALESMAN, METALS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2 3	2	2 3	4 3	3	4 3	4	4	4	5	4 5	L56	I	5-4	8-6	762	75901

5133 - COMMERICAL TRAVELLERS 158, 358

WORK PERFORMED: This chapter includes occupations concerned with selling commodities on a wholesale basis to wholesale, retail, industrial, professional or other establishments in an allotted geographical area. Worker functions include: persuading customers to buy products; compiling data about products so as to be able to explain their merits; and computing total costs of orders. Work activities include: soliciting orders from established clientele and attempting to secure new accounts; showing samples or catalogue illustrations of products to prospective buyers; quoting prices and credit and discount terms; processing orders to office or warehouse and arranging delivery schedules; resolving customer complaints; and keeping abreast of the latest market conditions, product innovations and price changes.

APTITUDES AND CAPACITIES: learning ability to acquire and apply a knowledge of the persuasive techniques of selling, and to understand the functions, qualities, applications and specifications of the products sold; verbal ability to communicate effectively when describing products, discussing prices or resolving complaints; numerical ability to calculate prices, and credit and discount terms; clerical perception to maintain accurate records of transactions.

TRAINING AND ENTRY REQUIREMENTS: a minimum of twelve years of general education; some product and plant experience followed by extensive-on-the-job training for a period of from six months to two years; some previous sales experience, although most establishments provide extensive sales-oriented training. Some occupations require additional training, for example 5133-114 PHARMACEUTICAL REPRESENTATIVE would normally require post-secondary courses in chemistry and biology.

ADVANCEMENT POSSIBILITIES: Workers with supervisory abilities and a potential for leadership may advance to appropriate occupations in Unit Group 5130 SUPERVISORS: SALES OCCUPATIONS, COMMODITIES. See also Chapter 510 MANAGING SUPERVISORS AND SUPERVISORS, SALES OCCUPATIONS for qualifications profiles.

TRANSFER POSSIBILITIES: Transfer may be to occupations requiring little or no travelling, usually in wholesale or retail establishments which sell products related to previous sales experience; for example, some occupations in Chapter 5135 SALESMEN AND SALESPERSONS, COMMODITIES, N.E.C. and Chapter 5191 BUYERS, WHOLESALE AND RETAIL TRADE.

OCCUPATIONAL TITLES:

5133-110	MANUFACTURERS' AGENT
5133-114	PHARMACEUTICAL REPRESENTATIVE
5133-118	SALES REPRESENTATIVE, TEXTBOOKS
5133-126	SALES REPRESENTATIVE, COMMERCIAL AND INDUSTRIAL EQUIPMENT AND SUPPLIES
5133-122	SALES REPRESENTATIVE, CANVAS PRODUCTS
5133-130	SALES REPRESENTATIVE, FOOD PRODUCTS
5133-134	SALES REPRESENTATIVE, GARMENTS AND OTHER TEXTILE PRODUCTS
5133-138	SALES REPRESENTATIVE, MOTOR VEHICLES AND EQUIPMENT
5133-142	SALES REPRESENTATIVE, PETROLEUM PRODUCTS
5133-146	SALES REPRESENTATIVE, PLASTIC PRODUCTS
5133-150	SALES REPRESENTATIVE, PULP AND PAPER PRODUCTS
5133-154	SALES REPRESENTATIVE, RUBBER PRODUCTS
5133-158	CONTACT MAN, RECORDINGS
5133-162	SALES REPRESENTATIVE, PUBLICATIONS
5133-166	SALES REPRESENTATIVE, TOBACCO PRODUCTS AND SMOKING SUPPLIES.

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	4	4	4	4	5	L56	I	4	7-5	26	759
	2	2				4					4						

5135 - SALESMEN AND SALESPERSONS, COMMODITIES, N.E.C. 353, 354, 357

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with selling commodities in wholesale and retail trade establishments. Worker functions include: persuading customer to purchase commodities; and compiling data to describe product advantages. Work activities include: talking to customer to ascertain his wants, such as make, type and quality of merchandise; displaying and demonstrating article and setting up displays in window or on sales floor; advising customer on care and use of merchandise; quoting prices, credit terms, trade-in allowances and delivery date; preparing sales slip or sales contract; receiving payment or arranging credit authorization; maintaining records of transactions and inventory of stock; and requisitioning merchansie from stock room or warehouse.

APTITUDES AND CAPACITIES: learning ability to acquire and apply a knowledge of the persuasive techniques of selling, and to become familiar with products; verbal ability to communicate effectively with customers; numerical ability to calculate prices of orders; clerical perception to prepare sales receipts and inventory records; ability to perceive differences in colours, or similarities in shades of same colour, when recommending, for example, contrasting or complementing household furnishings.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; and from 3 months to one year of on-the-job training, depending on the product or type of selling involved.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory abilities may advance to appropriate occupations in Unit Group 5130 SUPERVISORS: SALES OCCUPATIONS, COMMODITIES. See also Chapter 510 MANAGING SUPERVISORS AND SUPERVISORS, SALES OCCUPATIONS for qualifications profiles. Others may advance to occupations such as those in Chapter 5133 COMMERCIAL TRAVELLERS.

TRANSFER POSSIBILITIES: Transfer may be to other sales occupations within this chapter with only a limited period required for product familiarization.

OCCUPATIONAL TITLES:

5135-110	SALESMAN, MOTOR VEHICLES
5135-114	SALESMAN, SEWING MACHINES
5135-118	SALESMAN, HEARING AIDS
5135-120	SALESMAN, LIVESTOCK
5135-122	SALESMAN, MUSICAL INSTRUMENTS AND SUPPLIES
5135-126	SALESPERSON, PARTS
5135-130	SALESMAN, BOATS AND MARINE EQUIPMENT
5135-134	SALESMAN, DRAPERY AND UPHOLSTERY
5135-138	SALESMAN, FLOOR COVERINGS
5135-142	SALESMAN, FURNITURE AND APPLIANCES
5135-146	SALESMAN, HOUSE TRAILERS
5135-150	SALESPERSON, BOOKS
5135-154	SALEPERSON, HARDWARE
5135-158	SALESPERSON, JEWELLERY AND RELATED PRODUCTS
5135-162	SALESPERSON, PETS AND PET SUPPLIES
5135-166	SALESPERSON, PHOTOGRAPHIC EQUIPMENT AND SUPPLIES
5135-170	SALESPERSON, SPORTING GOODS
5135-174	SALESPERSON, SURGICAL APPLIANCES
5135-178	SALESPERSON, WEARING APPAREL
5135-182	SALESPERSON, FOOTWEAR
5135-186	SALESPERSON, AUTOMOBILE ACCESSORIES
5135-190	SALESPERSON, HOUSEWARES
5135-194	SALESPERSON, YARD GOODS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	4	4	4	5	3	L456	I	4-3	6-4	26	7590
			4	3		4	3		3		4						
											5						

5141 - STREET VENDORS AND DOOR-TO-DOOR SALESMEN

358, 457

WORK PERFORMED: This chapter includes occupations concerned with selling a variety of goods or products by soliciting orders from door-to-door or on the street. Worker functions include: persuading customers to buy products; handling goods to demonstrate their merits; compiling data about products so as to be able to explain their qualities; computing costs of orders received; and transcribing details of orders. Work activities include: carrying samples from door-to-door; arranging and displaying products; delivering goods and receiving payment.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to acquire and apply a knowledge of the persuasive techniques of selling and to become familiar with the products sold; verbal ability to communicate effectively when describing products; numerical ability to calculate prices of orders quickly and accurately and to make change; clerical perception for 5141-110 DOOR-TO-DOOR SALESMAN, to prepare sales receipts and maintain accurate records of transactions.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: a minimum of eight years of general education; a short period of on-the-job training, from a few days to one month. Although not mandatory, some previous sales experience is an asset.

ADVANCEMENT POSSIBILITIES: Door-to-Door Salesmen who have potential for supervision may advance to 5130-126 SUPERVISOR, DOOR-TO-DOOR SALESMEN. See also Chapter 510, MANAGING SUPERVISORS AND SUPERVISOR, SALES OCCUPATIONS, for qualifications profile. There are no clearly defined advancement patterns for Street Vendors.

TRANSFER POSSIBILITIES: Transfer possibilities for Door-to-Door Salesmen and Street Vendors are limited to similar jobs with different employers, products or services.

OCCUPATIONAL TITLES:

5141-110	DOOR-TO-DOOR SALESMAN	5141-114	STREET VENDOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	4	4	4	4	4	4	L-M456	B	3-2	2	23	572
	4	4									5						25

5145 - SERVICE STATION ATTENDANTS

WORK PERFORMED: This chapter includes occupations concerned with selling fuel, lubricants and miscellaneous automotive products to motorists and performing routine service work such as cleaning, lubricating, and making minor repairs to motor vehicles. Worker functions include: serving customers; and handling materials, equipment, and supplies when servicing and making minor repairs to vehicles. Work activities include: filling vehicle's fuel tank and checking such things as oil levels, tire pressures and fluid levels; lubricating vehicles; replacing items such as engine belts, thermostats and spark plugs; selling automotive supplies such as batteries and tires; and collecting payment for services and supplies or completing credit card sales slip.

APTITUDES AND CAPACITIES: Service-Station Attendants require; learning ability to understand and apply simple motor-vehicle servicing instructions; numerical ability to make change quickly and accurately, is especially important for those who frequently operate cash registers; form perception to detect wear and observe faults in tires, belts and hoses during routine servicing work; eye-hand-finger co-ordination to handle tools and equipment, and use cash register or credit card imprinter; manual dexterity to lubricate and make adjustments to automobiles; agility to work under vehicles and in awkward positions involving stooping, kneeling, crouching, and reaching for servicing equipment; capacity to work inside with exposure to fumes, odours, dirt and grease, and outside with exposure to a wide range of climatic conditions.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; a one to two-year apprenticeship program in some provinces, or an equivalent of on-the-job training in other provinces; compulsory certification in some provinces.

ADVANCEMENT POSSIBILITIES: Advancement for Service-Station Attendants is to other sales-oriented jobs in the automotive industry, such as those occupations in Chapter 5135, SALESMEN AND SALESPERSONS, COMMODITIES, N.E.C., which are concerned with selling motor vehicles, parts and accessories. Workers who have a potential for supervision may advance to supervisory or managerial positions, such as 5130-118 MANAGING SUPERVISOR, SERVICE STATION. See also Chapter 510, MANAGING SUPERVISORS AND SUPERVISORS, SALES OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer is to to other occupations involving service and care of motor vehicles, for example, 9179-162 CAR-RENTAL SERVICEMAN, or 9173-114 CHAUFFEUR.

OCCUPATIONAL TITLES:

5145-110 SERVICE-STATION ATTENDANT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	5	4	M3456	B7	2	3	123	23Y

5171 - INSURANCE SALESMEN AND AGENTS

WORK PERFORMED: This chapter includes occupations concerned with selling life, fire, accident, marine, automobile, and other types of insurance. Worker functions include: analyzing clients' insurance requirements and existing arrangements to establish the need for coverage; and persuading clients to purchase insurance. Work activities include: soliciting prospective clients for new business; explaining group and individual insurance plans and various types of insurance coverage to prospective clients; reviewing existing insurance coverage, ascertaining clients' needs, and suggesting changes in or additions to coverage; completing application forms and arranging for medical examinations and other policy requirements; calculating rates or premiums; and establishing method of premium payment.

APTITUDES AND CAPACITIES: Insurance Salesmen and Agents require: learning ability to understand insurance programs and to acquire and apply a knowledge of the persuasive techniques of selling; verbal ability to communicate effectively concerning insurance policies when promoting sale of insurance to prospective clients; numerical ability to evaluate clients' insurance requirements, determine rates of premiums and interpret statistical data in tables and manuals; clerical perception to observe detail in insurance proposals and tables and to complete application forms and prepare policies without errors.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: high school graduation, preferably with emphasis on commercial subjects and mathematics; a period of from one to four years of on-the-job training, usually supplemented by company sponsored courses; completion of provincial licensing requirements.

ADVANCEMENT POSSIBILITIES: Insurance Salesmen and Agents who have potential for supervision may advance to 5170-122 SUPERVISOR, LIFE INSURANCE SALESMEN. See also Chapter 510, MANAGING SUPERVISORS AND SUPERVISORS, SALES OCCUPATIONS, for qualifications profile. Those who are enterprising may operate their own independent business as agent for a number of insurance companies.

TRANSFER POSSIBILITIES: Transfer possibilities are limited and are usually to other companies within the industry.

OCCUPATIONAL TITLES:

5171-110 GROUP INSURANCE REPRESENTATIVE
5171-114 SALESMAN, LIFE INSURANCE
5171-118 SALESMAN, INSURANCE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3 2	3 2	3 2	4	4	3	4	4	4	5	5	S-L56	I	5-4	7-6	26	759

5172-B REAL ESTATE SALESMEN 318, 358

WORK PERFORMED: This chapter includes occupations concerned with selling and renting houses, apartments, building lots and other real property, normally on a commission basis. Worker functions include: persuading property owners to list their holdings and clients to purchase property; negotiating the terms of transactions between property owners and purchasers; analyzing data to appraise property; and compiling information on property offered for sale. Work activities include: advertising property for sale or rent; searching public records of sales, leases, assessments, easements and other transactions to determine ownership and property rights; and preparing sales contracts and processing documents to finalize sale.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply real estate practices and selling techniques; verbal ability to communicate effectively with clients when discussing property features; numerical ability to calculate data quickly and accurately when appraising property or writing-up offers-to-purchase.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: twelve years of general education; on-the-job training, usually for a period of one year; licensing by municipal or provincial authorities.

ADVANCEMENT POSSIBILITIES: Workers in this chapter, who have supervisory potential, may advance to supervisory or managerial positions such as 5170-126 MANAGING SUPERVISOR, REAL ESTATE. See also Chapter 510 MANAGING SUPERVISORS AND SUPERVISORS, SALES OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Opportunities for transfer are normally limited to appropriate occupations within the same field of work. Transfer between occupations in this cluster is normal because of the similarities in skills required.

OCCUPATIONAL TITLES:

5172-112	RIGHT-OF-WAY AGENT	5172-118	SALESMAN, REAL ESTATE
5172-114	SALESMAN, NEW HOMES	5172-122	LEASEMAN, SIGNS AND DISPLAYS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	$\underline{3}$	$\underline{3}$	4	4	3	4	4	4	5	4	L56	B	4	6-5	26	759
			$\underline{4}$	3							5						

5173 - SALESMEN AND TRADERS, SECURITIES

118, 258, 268

WORK PERFORMED: This chapter includes occupations concerned with buying and selling securities such as stocks, bonds, and mutual funds, and selling trust company services. Worker functions include: co-ordinating the buying and selling of securities to maintain a balanced portfolio for client; analyzing market conditions to establish the buying and selling price of particular security or commodity; negotiating with other traders for the purchase and resale of securities to maintain firm's inventory; persuading clients to purchase recommended securities, commodities or services; and speaking to other traders to establish buying and selling price of securities. Work activities include: advising clients concerning history and prospects of organization in which investment is contemplated; furnishing clients with information regarding securities, commodities, services, and market conditions; and developing suitable investment portfolios or trust accounts for presentation to clients.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the practices and functioning of the stock market, and to acquire and apply a knowledge of the persuasive techniques of selling; verbal ability to communicate effectively with clients, brokers and traders; numerical ability to make calculations quickly and accurately when establishing trading prices, considering market conditions and calculating cost involved in developing investment portfolios; clerical perception to prepare and analyze reports and charts of market conditions, market quotations and to avoid errors in calculations. For 5173-122 BROKER'S FLOOR REPRESENTATIVE, the ability to work effectively while surrounded by constant noise in the stock exchange floor area.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: a minimum of twelve years of general education; two or more years of progressive experience and on-the-job training; and completion of provincial licensing requirements; for 5173-110 SECURITIES TRADER, a university degree in Business Administration or Economics, or the equivalent in part-time studies; and from two to four years of progressive experience and training in a securities trading organization.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter who have potential for supervision may advance to appropriate occupations in Unit Group 5170, SUPERVISORS: SALES OCCUPATIONS, SERVICES. See also Chapter 510, MANAGING SUPERVISORS AND SUPERVISORS, SALES OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: The specialized nature of the work performed usually limits transfers to similar occupations within the same industry.

OCCUPATIONAL TITLES:

5173-110	SECURITIES TRADER	5173-122	BROKER'S FLOOR REPRESENTATIVE
5173-114	MUTUAL-FUND SALESMAN	5173-126	GRAIN TRADER
5173-118	SALESMAN, TRUST SERVICES		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2 3	2 3	2 3	4	4	3	4	4	4	5	5	S-L56	I	5-4	7-6	26	759

5174 - ADVERTISING SALESMEN

258, 354, 358

WORK PERFORMED: This chapter includes occupations concerned with selling artwork to advertising agencies or industrial organizations, selling display or classified advertising space, and selling advertising time on radio or television programs. Worker functions include: analyzing customers' needs to determine most beneficial advertising presentation; compiling data on effectiveness of advertising in particular media; and persuading customers to purchase advertising space or time. Work activities include: calling on prospective customers to solicit business; suggesting ideas for signs and displays; preparing advertising layouts to meet customers' needs; explaining advantages of advertising in publication or on radio or television programs; discussing prices and terms; and preparing sales contracts.

APTITUDES AND CAPACITIES: Advertising Salesmen require: learning ability to understand, interpret and transfer the customers' needs and requests into a suitable advertising format, and to acquire a knowledge of the persuasive techniques of selling; verbal ability to present advertising ideas effectively and convincingly; numerical ability to compute job costs, prepare estimates and determine advertising effectiveness; clerical perception to draw up contracts, and to write copy and headings; depth perception and colour vision when composing sample advertising layouts and illustrations.

TRAINING AND ENTRY REQUIREMENTS: Advertising Salesmen normally require: a minimum of twelve years of general education; on-the-job training for a period of at least one year; and several years related experience either in commerical artwork or sales-oriented positions.

ADVANCEMENT POSSIBILITIES: Advertising Salesmen with supervisory abilities may advance to appropriate occupations in Unit Group 5170, SUPERVISORS: SALES OCCUPATIONS, SERVICES. See also 510, MANAGING SUPERVISORS AND SUPERVISORS, SALES OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: Transfer is normally limited to occupations within this chapter, but is also possibile to other sales-oriented occupations in Chapter 5177, BUSINESS SERVICES SALESMEN, where selling is the primary requisite.

OCCUPATIONAL TITLES:

5174-110	SALESMAN, ART	5174-118	SALESMAN, ADVERTISING
5174-114	SALESMAN, SIGNS AND DISPLAYS	5174-122	SALESMAN, RADIO OR TELEVISION TIME

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	3	3	4	4	4	4	5	3	S-L567	I	4	7-6	26	759
				5	4						4						
											5						

5177-B BUSINESS SERVICES SALESMEN

158, 258, 357, 358

WORK PERFORMED: This chapter includes occupations concerned with selling various services such as credit reporting and debt collection, printing, security, freight and telecommunications to industrial, commercial, institutional, professional and other enterprises. Worker functions include: analyzing customers' requirements to establish need for particular services; compiling data to substantiate analyses of customers' needs; persuading customers to purchase; and co-ordinating customers' existing operations with new services provided. Work activities include: contacting prospective customers to arrange appointments; interviewing customers; explaining use and benefits of improved or additional service; providing technical advice and assistance; quoting prices; and preparing sales contracts and related documents.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand, interpret and evaluate technical data, to acquire a knowledge of engineering techniques, and to acquire and apply a knowledge of the persuasive techniques of selling; verbal ability to communicate effectively when explaining service offered, providing technical advice, and conferring with engineering and production personnel; numerical ability to compile data on customers' service requirements and to calculate rates or service charges.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: ten to twelve years of general education; one to two years of on-the-job training depending on the complexity of the product or service sold; or several years of progressive related experience.

ADVANCEMENT POSSIBILITIES: Advancement for workers in this chapter is through senior sales positions to supervisory or managerial positions, such as appropriate occupations in Unit Group 5170 SUPERVISORS: SALES OCCUPATIONS, SERVICES. See also Chapter 510, MANAGING SUPERVISORS AND SUPERVISORS, SALES OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer for workers in this chapter is possible to other sales-oriented occupations where selling is the primary requiste, for examples see Chapter 5131, TECHNICAL SALESMEN AND RELATED ADVISERS, Chapter 5133, COMMERCIAL TRAVELLERS and Chapter 5174 ADVERTISING SALESMEN.

OCCUPATIONAL TITLES:

5177-114	SALES REPRESENTATIVE, HOTEL SERVICES
5177-118	SALES REPRESENTATIVE, TELECOMMUNICATIONS
5177-122	SALEMAN, FREIGHT SERVICE
5177-126	MEMBERSHIP PROMOTION OFFICER
5177-130	SALESMAN, FINANCIAL SERVICES
5177-134	SALESMAN, PRINTING
5177-138	SALESMAN, MACHINE-VENDING SERVICE
5177-142	SALESMAN, ARMOURED-CAR SERVICE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	4	4	4	5	5	L56	I	4-3	7-3	26	7590
			4	3	3	4											759

5191 - BUYERS, WHOLESALE AND RETAIL TRADE

118, 353, 368

WORK PERFORMED: This chapter includes occupations concerned with buying commodities for resale in wholesale and retail trade. Worker functions include: reviewing market requirements and co-ordinating the buying of merchandise for establishment; compiling information from trade periodicals, sales promotion literature, and other sources; persuading suppliers to sell merchandise at lowest possible price; and negotiating credit terms, discounts and delivery arrangements with suppliers. Work activities include: determining quantity and type of goods to be purchased; visiting showrooms, factories and markets, and interviewing salesmen, manufacturers and other suppliers to establish and maintain contacts, become familiar with market conditions, and keep abreast of price fluctuations; appraising goods to determine value; and inspecting goods on receipt to authorize payment or return of unsatisfactory merchandise.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to become familiar with establishment's merchandise or commodities, understand their underlying principles or properties, and to acquire and apply a knowledge of the techniques of buying; verbal ability to communicate effectively when negotiating prices and terms for purchase of goods; numerical ability to deal quickly and accurately with figures when keeping records of transactions and calculating costs of commodities; near visual acuity and colour vision to enable close examination of commodities when appraising goods to establish their value. Additionally for 5191-118 BUYER, SALVAGE, eye-hand-foot co-ordination to drive a car or truck, and the physical capacity to perform heavy work, requiring occasional lifting of scrap material weighing up to one hundred pounds.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; on-the-job training, varying from six months to two years, depending on the occupation; experience in other jobs for a minimum of three months, with some occupations requiring several years of progressive related experience. 5191-110 BUYER may require a university degree in a particular discipline depending on his specialization, or successful completion of secondary school education together with a demonstrated capacity for work in the buying or related field.

ADVANCEMENT POSSIBILITIES: Workers who have a potential for supervision may advance to supervisory or managerial occupations in Unit Group 5130, SUPERVISORS: SALES OCCUPATIONS, COMMODITIES. See also Chapter 510, MANAGING SUPERVISORS AND SUPERVISOR, SALES OCCUPATIONS, for qualifications profiles. Advancement is also possible from an assistant buyer to buyer, when sufficent knowledge of commodity and experience in buying is obtained.

TRANSFER POSSIBILITIES: Transfer is normally limited to commodity-sales oriented occupations, examples of which are found in Chapter 5135, SALESMEN AND SALES-PERSONS, COMMODITIES, N.E.C., and Chapter 5137, SALES CLERKS, COMMODITIES.

OCCUPATIONAL TITLES:

5191-110 BUYER
5191-114 BUYER, ASSISTANT
5191-118 BUYER, SALVAGE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	4	3	3	4	4	4	5	4	L4567	I	5-3	7-5	251	5790
	3	3	3							4						12	

5193-A DRIVER-SALESMEN

353, 363, 453, 473

WORK PERFORMED: This chapter includes occupations concerned with driving trucks or other vehicles over an established route to sell goods or services. Worker functions include: driving a vehicle on an established route; serving customers in a patient and courteous manner; persuading customers to purchase goods or services; computing costs of goods or services; compiling data when writing-up orders; and handling merchandise. Work activities include: loading vehicle with merchandise; delivering and selling goods such as dairy and bakery products, and food and beverages; collecting and delivering items such as laundry and dry-cleaned garments; collecting coins from amusement and vending machines; refilling vending machines with merchandise; collecting payment for deliveries and sales; and making adjustments and minor repairs to amusement and vending machines.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and become familiar with their particular goods and services, and to acquire and apply a knowledge of the persuasive techniques of selling; numerical ability to calculate prices of orders quickly and accurately; clerical perception to discern pertinent detail in sales receipt and records of transactions; capacity to perform medium to heavy work requiring frequent lifting and carrying of merchandise weighing up to fifty pounds and occasional lifting of articles weighing up to one hundred pounds; ability to stoop, kneel or crouch, and reach for and handle merchandise and equipment when loading vehicle or making adjustments to machines; verbal ability to communicate effectively when selling products to customers and soliciting new business; eye-hand-foot co-ordination and spatial perception to drive vehicle.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: eight to ten years of general education; on-the-job training for a period of from one to three months; previous experience either in a sales occupation or service work. Workers in this chapter normally will be required to possess a valid chauffeur's licence and also may be required to purchase a vending licence, depending on local regulations.

ADVANCEMENT POSSIBILITIES: Workers who have potential for supervision may advance to supervisory or managerial positions, such as 5190-110 SUPERVISOR, DRIVER-SALESMEN. See also Chapter 510, MANAGING SUPERVISORS AND SUPERVISORS, SALES OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: Opportunities for transfer are normally limited to similar occupations within this chapter, although workers from Cluster A may transfer to various occupations in Minor Group 917 MOTOR TRANSPORT OPERATING OCCUPATIONS, where driving a vehicle is the primary work performed.

OCCUPATIONAL TITLES:

5193-110	AMUSEMENT-MACHINE ROUTEMAN	5193-118	DRIVER-SALESMAN
5193-114	VENDING-MACHINE ROUTEMAN	5193-122	MOBILE-CANTEEN DRIVER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	3	4	3	3	4	4	3	4	M-H34567	B	3	4-2	123	57 50

610-A MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with operating establishments on own or owner's behalf and with supervising workers engaged in providing services; such as, serving food and beverages; supplying accommodation in hotels, office buildings and similar establishments; laundering, dry cleaning and pressing clothes; and cleaning buildings, equipment, vehicles and aircraft. Worker functions include: planning and organizing operations of establishment based on study of customer requirements and market conditions; and defining or interpreting procedures, assigning specific duties to workers, maintaining harmonious relations, and promoting efficiency within organization. Work activities include: promoting the use of establishment's services; estimating customer demands and requisitioning supplies or equipment; hiring and training workers; establishing standards and quality of services; handling, or supervising the handling of money; preparing accounts or production reports; receiving and acting on customer complaints; initiating personnel actions such as promotions and discharges; and conferring with workers to resolve grievances and other employee problems.

APTITUDES AND CAPACITIES: learning ability to acquire a sound knowledge of the service industry concerned and to understand and apply appropriate supervisory principles and techniques; and reasoning ability to effectively plan, organize and expedite work activities; verbal ability to comprehend reports and to effectively communicate with superiors and subordinates; clerical perception to detect errors in correspondence, price lists, inventory records and other written or tabular material; numerical ability to prepare budget estimates, compute quantities and costs of supplies, and total cash receipts.

TRAINING AND ENTRY REQUIREMENTS: 10 to 14 years of general education; 2 to 4 years experience in related subordinate positions or on-the-job training. Workers are usually selected from employees who have demonstrated leadership qualities and initiative in lower level jobs. They may receive formal training in such subjects as business management, job relationships and job instruction training from their employers.

ADVANCEMENT POSSIBILITIES: Workers who demonstrate potential for further development, may advance to higher supervisory or managerial positions. For example, 6160-110 MANAGING SUPERVISOR, LAUNDERING, DRY-CLEANING ESTABLISHMENT may advance to 1142-122 AREA MANAGER, LAUNDRY AND DRY CLEANING.

TRANSFER POSSIBILITIES: Transfer for workers in this chapter is limited because of the specialized nature of the work involved. However, some workers may transfer between occupations within this chapter or to occupations concerned with selling services, for example 6130-114 MANAGING SUPERVISOR, HOTEL, MOTEL AND LODGING HOUSE could transfer to 5177-114 SALES REPRESENTATIVE, HOTEL SERVICES.

OCCUPATIONAL TITLES:

6120-110	MANAGING SUPERVISOR, DINING ESTABLISHMENT
6120-114	MANAGING SUPERVISOR, FOOD CONCESSION
6130-110	MANAGING SUPERVISOR, BUILDING
6130-114	MANAGING SUPERVISOR, HOTEL, MOTEL AND LODGING HOUSE
6160-110	MANAGING SUPERVISOR, LAUNDERING, DRY-CLEANING ESTABLISHMENT
6190-112	MANAGING SUPERVISOR, RECREATION ESTABLISHMENTS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	4	4	4	5	5	S-L56	I-B	5-3	7-6	25	4591
	2	2	4														

610-B MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with operating establishments on own or owner's behalf and with supervising workers engaged in providing services; such as serving food and beverages; supplying accommodation in hotels, office buildings and similar establishments; laundering, dry cleaning and pressing clothes; and cleaning buildings, equipment, vehicles and aircraft. Worker functions include: planning and organizing operations of establishment based on study of customer requirements and market conditions; and defining or interpreting procedures, assigning specific duties to workers, maintaining harmonious relations, and promoting efficiency within organization. Work activities include: promoting the use of establishment's services; estimating customer demands and requisitioning supplies or equipment; hiring and training workers; establishing standards and quality of services; handling, or supervising the handling of money; preparing accounts or production reports; receiving and acting on customer complaints; initiating personnel actions such as promotions and discharges; and conferring with workers to resolve grievances and other employee problems.

APTITUDES AND CAPACITIES: learning ability to acquire a sound knowledge of the service industry concerned and to understand and apply appropriate supervisory principles and techniques; and reasoning ability to effectively plan, organize and expedite work activities; verbal ability to comprehend reports and to effectively communicate with superiors and subordinates; clerical perception to detect errors in correspondnece, price lists, inventory records and other written or tabular material.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; one to five years experience in related subordinate positions or on-the-job training. Workers are usually selected from employees who have demonstrated leadership qualities and initiative in lower level jobs. They may receive formal training in such subjects as business management, job relationships and job instruction training from their employers.

ADVANCEMENT POSSIBILITIES: Workers who demonstrate potential for further development may advance to higher supervisory or managerial positions. For example, 6190-110 FOREMAN, JANITORS, CHARWORKERS AND CLEANERS may advance to 1142-126 BRANCH MANAGER, JANITORIAL SERVICES.

TRANSFER POSSIBILITIES: Transfer for workers is limited because of the specialized nature of the work involved. However, some workers may transfer between occupations within this chapter or to occupations concerned with selling services.

OCCUPATIONAL TITLES:

6120-118	SUPERVISOR, BARTENDERS
6120-122	SUPERVISOR, CHEFS AND COOKS
6120-126	SUPERVISOR, WAITERS, HOSTESSES AND STEWARDS, FOOD AND BEVERAGE
6130-118	SUPERVISOR, BAGGAGE PORTERS AND BELLMEN
6130-122	BUILDING SUPERINTENDENT
6130-126	EXECUTIVE HOUSEKEEPER
6130-130	SLEEPING-CAR CONDUCTOR
6160-114	FOREMAN, LAUNDERING, DRY-CLEANING AND PRESSING OCCUPATIONS
6190-110	FOREMAN, JANITORS, CHARWORKERS AND CLEANERS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	4	4	4	4	5	5 4	L456	I-B	4-3	8-5	25	45

6111-A FIRE-FIGHTING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with providing protection against fire, fighting fires and protecting lives and property. Worker functions include: manipulating tools, hoses and controls of fire extinguishing apparatus; driving vehicles and operating pumping equipment; co-ordinating and supervising activities of fire-fighting personnel; and comparing structural characteristics, composition and contents of buildings to determine compliance with fire regulations, or to detect fire hazards or establish causes of fires. Work activities include: inspecting fire-fighting equipment and buildings; participating in and training others in fire-fighting techniques; responding to alarms and emergency calls; extinguishing fires; rescuing persons and animals; retrieving materials and equipment; and administering first aid.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply fire regulations, fire-fighting methods and emergency procedures, and reasoning ability and judgment to apply appropriate techniques to actual fire-fighting situations; verbal ability to understand and effectively use language and terminology found in instructions and regulations specific to fire prevention, fire-fighting, rescue and first aid; to instruct personnel in fight-fighting methods; and to direct operations at scenes of fires; numerical ability to make calculations of quantity, size and type of fire-fighting equipment required, to prepare estimates for purchases of materials, and to appraise fire losses; spatial perception to visualize relationships of buildings and fire-fighting equipment to avoid falling walls, or overhead wires and objects when raising ladders, and when moving vehicles in congested areas; form perception to see slight differences in detail of objects or materials to detect fire hazards or determine causes of fires; clerical perception to observe detail in reports or instructions and to avoid perceptual errors when ordering equipment and supplies; capacity to extend arms and hands in any direction to handle hoses and use axes, chisels, crow-bars, chain saws and similar tools; visual acuity and depth perception to detect fire hazards, determine source, nature and extent of fires, observe gauges on fire-truck equipment, direct chemicals or water on fire, or give orders to fire fighters from a distance; capacity to work both inside and outside while exposed to water, and extremes of heat from fires and cold temperatures; capacity to work while exposed to physical hazards such as fire, smoke, gases, flying debris, ice, exploding fuel and munitions, falls from roofs or ladders, burns, asphyxiation or electrocution.

TRAINING AND ENTRY REQUIREMENTS: nine to eleven years of general education, and progressive experience in fire-fighting occupations for periods of three to eight years. Some fire chiefs may require three to four years of specialized experience in fighting chemical and oil fires.

ADVANCEMENT POSSIBILITIES: Workers who have the necessary fire-fighting experience, and abilities, may advance to similar positions in governmental or industrial organizations, involving more responsibility and increased remuneration.

TRANSFER POSSIBILITIES: Workers who have the necessary aptitudes, interest and temperaments, may transfer to related occupations such as 1116-166 FIRE INSPECTOR, 1176-162 FIRE-SAFETY INSPECTOR, and 5133-110 MANUFACTURERS' AGENT.

OCCUPATIONAL TITLES:

6111-110 FIRE CHIEF
6111-114 FIRE CAPTAIN
6111-118 FIRE CHIEF

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	4	4	4	4	5	L4567	B3467	6	8-7	526	458109
	2	2				3											

6111-B FIRE-FIGHTING OCCUPATIONS

663, 664

WORK PERFORMED: This chapter includes occupations concerned with providing protection against fire, fighting fires and protecting lives and property. Worker functions include: manipulating tools, hoses and controls of fire extinguishing apparatus; driving vehicles and operating pumping equipment; co-ordinating and supervising activities of fire-fighting personnel; and comparing structural characteristics, composition and contents of buildings to determine compliance with fire regulations, or to detect fire hazards or establish causes of fires. Work activities include: inspecting fire-fighting equipment and buildings; participating in and training others in fire-fighting techniques; responding to alarms and emergency calls; extinguishing fires; rescuing persons and animals; retrieving materials and equipment; and administering first aid.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply fire regulations, fire-fighting methods and emergency procedures, and reasoning ability and judgment to apply appropriate techniques to actual fire-fighting situations; verbal ability to understand and effectively use language and terminology found in instructions and regulations specific to fire prevention, fire-fighting, rescue and first aid; spatial perception to visualize relationships of buildings and fire-fighting equipment to avoid falling walls, overhead wires and objects when raising ladders, and moving vehicles in congested areas; form perception to see slight differences in detail of objects or materials to detect fire hazards or determine causes of fires; eye-hand co-ordination to quickly control and direct streams of water or chemicals on fire; manual dexterity to position ladders, hold safety nets, connect hoses, turn valves, use inhalators and apply artificial respiration; eye-hand-foot co-ordination to drive trucks, climb ladders, balance and walk on ledges, and perform rescue operations; strength to perform medium to heavy work requiring frequent lifting of equipment weighing up to fifty pounds occasionally using considerable physical effort while rescuing persons; agility to climb and balance on ladders at great heights, and to stoop, kneel and crouch, while fighting fires and applying artificial respiration; capability of extending arms and hands in any direction to handle hoses and use axes, chisels, crow-bars, chain saws and similar tools; clarity of vision to detect fire hazards, to determine source, nature and extent of fires, observe gauges on fire-truck equipment, direct chemicals or water on fire, or give orders to fire-fighters from a distance; capacity to work both inside and outside while exposed to water and extrememes of heat from fires and cold temperatures; capacity to work while exposed to physical hazards, such as fire, smoke, gases, flying debris, ice, exploding fuel and munitions, falls from roofs or ladders, burns, asphyxiation or electrocution.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: nine to eleven years of general education, an initial training program for a period of one month, and on-the-job training for one to two years; current motor-vehicle operator's or chauffeur's licence; passing of medical examination to meet physical requirements; personal assessment and written or oral examination for permanent appointment.

ADVANCEMENT POSSIBILITIES: Workers who have the necessary fire-fighting experience, seniority and abilities, may advance to positions of higher rank or remuneration within this cluster. In addition some workers who have the necessary experience and potential for planning, supervising, instructing and leadership, may advance to occupations in Cluster A.

TRANSFER POSSIBILITIES: Workers in this cluster who have the necessary abilities may transfer with further training, to other occupations as described in the transfer section for Cluster A.

OCCUPATIONAL TITLES:

6111-122 FIRE FIGHTER, CRASH

6111-126 FIRE FIGHTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	5	2	3	5	3	4	3	2 3	5	M-H2347	B3467	3	6	019	89015

118, 138, 268

6112-A POLICEMEN AND DETECTIVES, GOVERNMENT

WORK PERFORMED: This chapter includes occupations concerned with protecting the public, maintaining law and order, preventing and detecting crime, directing and controlling traffic, and conducting investigations. Worker functions include: co-ordinating, planning and directing operations of federal, provincial or municipal police forces; analyzing data concerned with police organization, investigations, and criminal acts; supervising personnel; speaking with people to enforce laws and regulations, arrest violators, investigate accidents and crimes, and testify in court; handling rescue and investigation equipment, firearms, and exhibits used as evidence; and driving vehicles and operating motor boats. Work activities include: instructing personnel concerning statutes, regulations, orders, procedures and techniques of police work; investigating complaints, crimes or accidents; apprehending criminals and locating lost or missing persons; administering first aid; and giving evidence in court.

APTITUDES AND CAPACITIES: Workers require: learning ability to acquire knowledge of laws and regulations and learn investigative procedures and methods; verbal ability to understand technical language of statutes, laws and regulations and to communicate effectively with people at all levels; clerical perception to prepare reports and maintain administrative, financial, police and personal records; adaptability to situations in which there is a risk of bodily injury.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: ten to twelve years of general education; four to fifteen years of progressive experience in law-enforcement activities; for administrative occupations, completion of a university program in business administration, criminology and police science or law-enforcement is desirable.

ADVANCEMENT POSSIBILITIES: Workers with sufficient experience, may advance from a lower to a higher level or rank. Workers with experience in planning, organizing, directing and controlling police personnel, may advance to 1113-122 SENIOR ADMINISTRATOR, GOVERNMENT DEPARTMENT, as commissioner of provincial or metropolitan police forces.

TRANSFER POSSIBILITIES: Workers may transfer to investigative or security occupations in private, industrial or business establishments.

OCCUPATIONAL TITLES:

6112-110	POLICE CHIEF
6112-114	DETACHMENT COMMANDER
6112-118	DETECTIVE INSPECTOR
6112-122	POLICE INSPECTOR
6112-126	POLICE INSPECTOR, HEADQUARTERS
6112-130	TRAFFIC INSPECTOR
6112-134	STAFF INSPECTOR, POLICE
6112-138	STATION-DUTY OFFICER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2 3	2 3	3	4	4 3	3	4	4	4	5 3	4	S-L567	I-B6	4	9-7	265	4598

6112-B POLICEMEN AND DETECTIVES, GOVERNMENT 263, 267, 268, 367, 583, 668

WORK PERFORMED: This chapter includes occupations concerned with protecting the public, maintaining law and order, preventing and detecting crime, directing and controlling traffic, and conducting investigations. Worker functions include: co-ordinating, planning and directing operations of federal, provincial or municipal police forces; analyzing data concerned with police organization, investigations, and criminal acts; supervising personnel; speaking with people to enforce laws and regulations, arrest violators, investigate accidents and crimes, and testify in court; handling rescue and investigation equipment, firearms, and exhibits used as evidence; and driving vehicles and operating motor boats. Work activities include: instructing personnel concerning statutes, regulations, orders, procedures and techniques of police work; investigating complaints, crimes or accidents; apprehending criminals and locating lost or missing persons; administering first aid; and giving evidence in court.

APTITUDES AND CAPACITIES: Workers require: learning ability to acquire knowledge of laws and regulations and learn investigative procedures and methods; verbal ability to understand technical language of statues, laws and regulations and to communicate effectively with people at all levels; clerical perception to prepare reports and maintain administrative, financial, police and personal records; adaptability to situations in which there is a risk of bodily injury; spatial perception to visualize circumstances of crime from the arrangement of evidence at the scene, and to analyse relative positions of vehicles following an accident in order to determine the cause; eye-hand-finger co-ordination and manual dexterity to administer artificial respiration or first aid, to restrain persons, to handle firearms and to operate vehicles; eye-hand-foot co-ordination, to drive various types of land or water vehicles and to maintain balance when controlling mobs, apprehending persons, and performing mounted patrol duties; strength to perform light to heavy work, participate in physical training, lift injured or deceased persons, prisoners, life-saving equipment, heavy objects or exhibits, and to restrain mobs.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; three months to one year of probationary training; two to ten years of experience combined with one-the-job training programs to enable eventual specialization. For 6112-174 PARKING-CONTROL OFFICER, who is not a policeman, the normal requirement is up to nine years of general education and on-the-job training courses of up to one month.

ADVANCEMENT POSSIBILITIES: Workers with sufficient experience, may advance from a lower to a higher level or rank. With the exception of parking-control officers, workers who have considerable police experience may advance to occupations in Cluster A.

TRANSFER POSSIBILITIES: Workers may transfer to investigative or security occupations in private, industrail or business establishments.

OCCUPATIONAL TITLES:

6112-142	IDENTIFICATION OFFICER
6112-146	DETECTIVE
6112-150	PATROLMAN, TRAFFIC
6112-154	HARBOUR POLICEMAN
6112-158	POLICEMAN
6112-162	POLICEWOMAN
6112-166	WAGON PATROLMAN
6112-170	POLICE CADET
6112-174	PARKING-CONTROL OFFICER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	3	3	3	4	3	3	4	L-H4567	B6	4-2	7-2	265	5890
			4	3	4	4	4		4	4	5						589

6113-B POLICEMEN AND INVESTIGATORS, PRIVATE

267, 268, 363, 368, 668

WORK PERFORMED: This chapter includes occupations concerned with protecting lives and private property, maintaining order, investigating irregularities concerning fire, sabotage or intrusions, and conducting private investigations. Worker functions include: determing procedures for use in investigations; analyzing data and compiling reports;comparing credentials; questioning individuals to obtain information or evidence; and supervising activities of private policemen and investigators. Work activities include: patrolling employer's premises; observing persons to detect unlawful practices or irregularities; conducting investigations of irregularities or reports of crime; obtaining assistance from local police; and driving vehicles to conduct investigations or respond to alarms.

APTITUDES AND CAPACITIES: Workers require: learning ability to understand and apply the principles and techniques of private investigation; verbal ability to understand the language used in regulations and instructions, to obtain information by effective questioning, to prepare statements from notes taken during interviews, and to give evidence in court; form perception to note pertinent detail in materials and objects; clerical perception to observe detail in instructions and to detect errors, such as those in sales slips, lists, schedules or reports, during investigations; eye-hand co-ordination and manual dexterity, except for 6113-134 SHOPPING INVESTIGATOR, to apprehend and detain persons, and additionally for 6113-126 ALARM INVESTIGATOR, to reset, adjust and make minor repairs to alarm equipment; eye-hand-foot co-ordination to drive vehicles at high speed in response to alarms while using two-way radio, and to maintain balance and protect self when making arrests; capacity to reach and restrain persons with hands occasionally requiring considerable strength; capacity to clearly hear detailed information over radio or telephone and during interviews or conversations, and to distinguish sounds during investigations; visual acuity to perceive the detailed characteristics of persons or objects, depth perception and field of vision to observe activities of suspects and to detect violations, and colour vision to distinguish alarm or signal lights; adaptability to exposure to physical injury when arresting or restraining persons.

TRAINING AND ENTRY REQUIREMENTS: Workers normally require: nine to eleven years of general education; on-the-job training from periods of three months to a year; current motor vehicle operator's or chauffeur's licence. A licence and permit to carry firearms may be required for some investigators. Previous experience in a police force may be required by some employers and evidence of ability to obtain a financial bond may also be specified prior to employment.

ADVANCEMENT POSSIBILITIES: Workers who have experience and potential, may advance to become 6113-110 SUPERVISOR, POLICEMEN AND INVESTIGATORS, PRIVATE or advance to positions in larger organizations, involving more responsibility and increased remuneration. Some workers such as 6113-118 SPECIAL AGENT, RAILWAY and 6113-130 POLICE CONSTABLE, RAILWAY, may advance with seniority through progressive levels or ranks to positions of higher remuneration.

TRANSFER POSSIBILITIES: Workers who have ability and meet the specified requirements may transfer with additional training to muncipal or other government police work. See Chapter 6112 POLICEMEN AND DETECTIVES, GOVERNMENT.

OCCUPATIONAL TITLES:

6113-114	PRIVATE INVESTIGATOR	6113-126	ALARM INVESTIGATOR
6113-118	SPECIAL AGENT, RAILWAY	6113-130	POLICE CONSTABLE, RAILWAY
6113-122	INVESTIGATOR, BUSINESS ESTABLISHMENT	6113-134	SHOPPING INVESTIGATOR
		6113-138	HOUSE DETECTIVE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	3	4	4	4	3	5	L4567	I-B6	4-3	6-3	26	589
						4			3	4							

6115A-B CORRECTIONAL OFFICERS AND MATRONS

WORK PERFORMED: This chapter includes occupations concerned with guarding prisoners and juvenile persons held in penitentiaries, reformatories, police stations or detention rooms. Worker functions include: supervising and co-ordinating the activities of correctional staff members; explaining regulations and answering inquiries; and observing inmates to compare their conduct and behaviour for evidence of forbidden activities and to prevent disturbances and escapes. Work activities include: searching prisoners and cells for weapons, drugs or other harmful articles; inspecting locks, window-bars, grills, doors and gates for evidence of tampering or malfunctioning; and caring for sick prisoners.

APTITUDES AND CAPACITIES: Learning ability to understand and implement the regulations and procedures concerned with guarding prisoners in detention rooms or penal institutions; form perception to recognize signs of tampering when inspecting locks, grills and doors for security; eye-hand-finger co-ordination and manual dexterity to render first aid, and to search prisoners for weapons and other prohibited articles; capacity to speak to prisoners to explain rules and regulations and to maintain discipline, and good hearing to detect abnormal or suspicious sounds; capacity to work while exposed to the threat of assaults from unruly prisoners.

TRAINING AND ENTRY REQUIREMENTS: Workers require no specific minimum educational standards although twelve years of general education are usually preferred; up to six months of on-the-job training, with courses of study provided by the employing agency.

ADVANCEMENT POSSIBILITIES: Correctional officers and matrons may advance to supervisory positions in Cluster A if they have leadership abilities and the necessary training and experience.

TRANSFER POSSIBILITIES: Provided they are given additional training, it is possible for workers to transfer to occupations requiring similar skills, such as 6115-122 ARMOURED-CAR GUARD, or 6115-138 SECURITY GUARD.

OCCUPATIONAL TITLES:

6115-130 CORRECTIONAL OFFICER

6115-142 MATRON

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	5	4	4	4	4	5	L4567	I6	3-2	4-2	23	58
	4				4												258

568, 587, 667, 668

6115B-B GUARDS AND WATCHMEN

WORK PERFORMED: This chapter includes occupations concerned with guarding and protecting industrial, commercial and private property against fire, vandalism, illegal entry or theft; and ensuring the safety of pedestrians and motorists at street or railway crossings. Worker functions include: supervising and co-ordinating the activities of guards and watchmen; observing patrolled areas or work site and comparing behaviour of people to detect irregularities or suspicious activities; answering questions, giving directions and explaining regulations; signalling motorists and pedestrians of approaching trains or traffic; recording data concerning damage to property, deliveries or receipt, and identity of persons and vehicles entering or leaving establishments; driving guard vehicles; and handling stop signs, lanterns and gates. Work activities include: guarding money and other valuables during transit to prevent theft; checking alarm, safety and utility systems, locks, windows and doors for security; registering at designated stations during inspections; opening gates or doors to allow entrance or exit of people and vehicles; and servicing fire-arms.

APTITUDES AND CAPACITIES: learning ability to understand and follow security procedures such as those involved in the safeguarding of valuables during transit to banks and business establishments, and in the security of buildings or other premises; form perception is required when carrying out detailed security inspections; clerical perception to correctly record information, such as personnel entry and departure times, nature, quantity and destination of valuables in transit; eye-hand co-ordination to perform duties, such as operating punch clocks, and ensuring doors, windows and gates have been locked; capacity to work while exposed to risk of injury during attempted robberies, fires or other emergencies. Additionally for 6115-126 CONVOY GUARD: spatial perception and eye-hand-foot co-ordination to drive vehicles.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; and progressive experience, including on-the-job training, of one to six months.

ADVANCEMENT POSSIBILITIES: Those who possess the necessary experience and ability in security work, may advance to supervisory positions or to similar positions at a higher level of remuneration and responsibility within their own or larger organizations.

TRANSFER POSSIBILITIES: Workers may transfer, with short periods of training, to other occupations within their chapter where similar skills are required in providing security to guard services. Workers who possess the necessary training and experience may also transfer to some occupations in Chapter 6113 POLICEMEN AND INVESTIGATORS, PRIVATE, such as 6113-134 SHOPPING INVESTIGATOR, and 6113-138 HOUSE DETECTIVE.

OCCUPATIONAL TITLES:

6115-122	ARMOURED-CAR GUARD	6115-134	GATEMAN
6115-126	CONVOY GUARD	6115-138	SECURITY GUARD

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	4	4	4		4	4	5	L-M4567	B6	3-2	4-3	13	28
	4									5	4					23	258
										3							

6121-A CHEFS AND COOKS

361, 381

WORK PERFORMED: This chapter includes occupations concerned with preparing and cooking foods in hotels, restaurants, clubs, dining-rooms, private households, institutions, and other establishments. Worker functions include: working to precise standards to cook foods according to recipes, handling food-stuffs when measuring, cleaning and preparing specified ingredients; manipulating kitchen utensils, equipment and appliances; and compiling information on menus, food arrangements and cooking methods. Work activities include: recording food inventory and requisitioning needed supplies; mixing ingredients; examining foods for freshness and proper cooking; and carving and serving portions for meals.

APTITUDES AND CAPACITIES: Workers require: learning ability to acquire and use the techniques for planning menus and ordering, storing, preparing and cooking foods, and to understand and apply the rules of hygiene and sanitation; numerical ability to make calculations of food requirements and costs; form perception to examine food and to verify consistency, texture and quality of finished products by observation; eye-hand-finger co-ordination when cutting, decorating and carving food and when working with kitchen utensils; finger dexterity to wash, peel, decorate, mould and garnish food; manual dexterity to slice and disjoint meat and poultry, mix ingredients, portion foods, knead and stretch dough and stir soups and sauces; physical capacity to stand most of the time, and to perform light to medium work requiring reaching and carrying of cooking utensils, stacks of dishes, trays, cases and containers of food weighing up to fifty pounds; visual acuity to properly clean and prepare foods for cooking; capacity to work while exposed to hazards such as burns, abraisions and cuts; adaptability to warm and humid conditions, and to odours of food; cooks working on trains and in ships require a sense of balance to maintain equilibrium; clerical perception to correctly read recipes and to avoid errors when determining supply requirements and costs; colour discrimination, especially required for 6121-110 SPECIALIST CHEF, to recognize differences in colours and shades of food to determine ripeness or freshness, or during cooking, and to decorate food according to designated colour scheme.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; a three to four-year apprenticeship program; or vocational training in a community college or vocational centre, and on-the-job training for a period of approximately three years; or progressive on-the-job training under the guidance of experienced cooks for a period of from one to two years.

ADVANCEMENT POSSIBILITIES: Advancement for 6121-110 SPECIALIST CHEF is normally to establishments with a higher reputation for specialist foods. Cooks who have the necessary initiative and artistic abilities may advance to 6121-110 SPECIALIST CHEF. Chefs and Cooks in this cluster with supervisory ability may, with additional training in food management, advance to 6120-122 SUPERVISOR, CHEFS AND COOKS, or to 6120-110 MANAGING SUPERVISOR, DINING ESTABLISHMENT. See also Chapter 610 MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS, for qualifications profiles. Those who acquire the necessary knowledge of business practices may become owners of their own establishments.

TRANSFER POSSIBILITIES: Experienced Chefs and Cooks may utilize their knowledge of foods and ingredients and transfer to other occupations associated with food processing such as 8226-122 QUALITY-CONTROL INSPECTOR, 8213-246 CANDY MAKER. Others may transfer within their cluster.

OCCUPATIONAL TITLES:

6121-110 SPECIALIST CHEF
6121-114 COOK
6121-118 COOK, DOMESTIC
6121-122 COOK, INSTITUTION

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3		3	4	3	3	3	5	4	L-M47	I367	4-3	8-6	9018	19YX
			4				4				3					901	19Y

6121-B CHEFS AND COOKS

WORK PERFORMED: This chapter includes occupations concerned with preparing and cooking foods in hotels, restaurants,clubs, dining-rooms, private households, institutions, and other establishments. Worker functions include: working to precise standards to cook foods according to recipes; handling food-stuffs when measuring, cleaning and preparing specified ingredients; manipulating kitchen utensils, equipment and appliances; and compiling information on menus, food arrangements and cooking methods. Work activities include: recording food inventory and requisitioning needed supplies; mixing ingredients; examining foods for freshness and proper cooking; and carving and serving portions for meals.

APTITUDES AND CAPACITIES: learning ability to acquire and use the techniques for planning menus and ordering, storing, preparing and cooking foods, and to understand and apply the rules of hygiene and sanitation; numerical ability to make calculations of food requirements and costs; form perception to examine food and to verify consistency, texture and quality of finished products by observation; eye-hand-finger co-ordination when cutting, decorating, and carving food and when working with kitchen utensils; finger dexterity to wash, peel, decorate, mould and garnish food; manual dexterity to slice and disjoint meat and poultry, mix ingredients, portion foods, knead and stretch dough and stir soups and sauces; physical capacity to stand most of the time, and to perform light to medium work requiring reaching and carrying of cooking utensils, stacks of dishes, trays, cases and containers of food weighing up to fifty pounds; visual acuity to properly clean and prepare foods for cooking; capacity to work while exposed to hazards such as burns, abraisions and cuts; adaptability to warm and humid conditions, and to odours of food; cooks working on trains and in ships require a sense of balance to maintain equilibrium.

TRAINING AND ENTRY REQUIREMENTS: seven to nine years of general education; on-the-job training or a combination of vocational and on-the-job in the preparations of a limited variety of dishes for a period of up to three months.

ADVANCEMENT POSSIBILITIES: Cooks in this cluster may advance to Cluster A provided they have acquired the necessary additional training. Those who acquire the necessary knowledge of business practices may become owner-operators of their own establishments.

TRANSFER POSSIBILITIES: Cooks in this cluster may transfer within the cluster, or to other food and beverage preparation occupations such as 6129-114 FOOD ASSEMBLER.

OCCUPATIONAL TITLES:

6121-126 COOK, SPECIALITY FOODS	6121-130 SHORT-ORDER COOK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3 4	4	3 4	3	3	5	4	L47	I367	3	3	91	9Y

6121-C CHEFS AND COOKS

WORK PERFORMED: This chapter includes occupations concerned with preparing and cooking foods in hotels, restaurants, clubs, dining-rooms, private households, institutions, and other establishments. Worker functions include: working to precise standards to cook foods according to recipes; handling food-stuffs when measuring, cleaning and preparing specified ingredients; manipulating kitchen utensils, equipment and appliances; and compiling information on menus, food arrangements and cooking methods. Work activities include: recording food inventory and requisitioning needed supplies; mixing ingredients; examining foods for freshness and proper cooking; and carving and serving portions for meals.

APTITUDES AND CAPACITIES: learning ability to understand and apply simple instructions and to follow routine kitchen procedures; eye-hand-finger co-ordination, finger dexterity, and manual dexterity to cut fruit, vegetables, meat and poultry, to wash, peel and seed fruit and vegetables, and to stir soups and sauces.

TRAINING AND ENTRY REQUIREMENTS: no specified educational requirements; up to thirty days of on-the-job training.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs, and advancement is to more highly skilled occupations within this chapter for workers who demonstrate ability, interest and initiative.

TRANSFER POSSIBILITIES: Cook Helpers may transfer to other elemental occupations requiring similar skills, such as 6125-130 CATERER HELPER, and 6198-134 KITCHEN HELPER.

OCCUPATIONAL TITLES:

6121-134 COOK HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	3	3	5	4	M47	I367	2	3	31	23

6123 - BARTENDERS

474, 487

WORK PERFORMED: This chapter includes occupations concerned with mixing and serving alcoholic and non-alcoholic beverages. Worker functions include: manipulating bar utensils and beverage containers to mix drinks according to patron's order; serving patrons with cocktails, wines, and draught and bottled beer; handling bottles, glasses and trays; and computing charges and making change. Work activities include: slicing and pitting fruit to be used as cocktail garnishes; ordering liquor and supplies; and keeping bar area neat and attractive.

APTITUDES AND CAPACITIES: Bartenders require: learning ability to acquire a knowledge of various wines and liquors, and to understand and apply the techniques of preparing and serving beverages; numerical ability to perform simple calculations quickly and accurately when tabulating bill, making change, balancing cash and estimating stock requirements; eye-hand-finger co-ordination and manual dexterity to measure, pour, mix and garnish drinks; finger dexterity to make change rapidly and accurately; physical stamina to stand continually for long periods of time and ability to lift and carry bottles, cases and kegs.

TRAINING AND ENTRY REQUIREMENTS: Bartenders normally require: no specified minimum educational level, but grade ten is usually preferred; up to three months of on-the-job training under guidance of an experienced bartender; or a combination of vocational training, available in some provinces, and on-the-job training for a period of up to three months.

ADVANCEMENT POSSIBILITIES: Bartenders who have experience and possess supervisory ability may advance to 6120-118 SUPERVISOR, BARTENDERS. See also Chapter 610, MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS, for qualification profiles. Some, with business ability, may become proprietors of their own establishments.

TRANSFER POSSIBILITIES: Bartenders may transfer to occupations requiring similar skills in Chapter 6125, WAITERS, HOSTESSES AND STEWARDS, FOOD AND BEVERAGE after short periods of training.

OCCUPATIONAL TITLES:

6123-110 BARTENDER

6123-114 TAPMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	3	4	4	4	3	3	3	5	4	L47	I	3-2	3-2	321	25Y
			$\underline{4}$			5		4			5	L4					

6125-A WAITERS, HOSTESSES AND STEWARDS, FOOD AND BEVERAGE

WORK PERFORMED: This chapter includes occupations concerned with serving food and beverages in public places such as hotels, clubs, restaurants, cocktail lounges, ships, railway-dining cars and drive-in restaurants. Worker functions include: speaking to customers to take orders for meals and drinks; serving clients by waiting on tables; manipulating serving utensils and tableware; and computing meal charges, accepting payment and making change. Worker activities include: reserving and arranging tables, greeting and seating customers, and assisting them in choice of food and beverages.

APTITUDES AND CAPACITIES: learning ability to acquire knowledge of menu items and food service techniques and to apply this knowledge when waiting on customers; numerical ability to compute bills and make change; clerical perception to correctly take down food orders and to avoid errors when computing bills; eye-hand-finger co-ordination and finger dexterity to arrange place settings, handle trays and utensils and garnish or decorate dishes; manual dexterity and ability to reach and make a variety of hand, wrist and arm movements when serving food and removing plates and utensils; physical capacity to perform duties requiring frequent standing and walking, pushing carts, carrying trays of food and stacking dishes; talking and hearing to receive and impart information when performing service duties such as, taking down food orders, adjusting complaints, advising patrons on food and beverages or ordering food from kitchen staff; form perception is required to detect irregularities when checking table settings and garnishing and decorating dishes.

TRAINING AND ENTRY REQUIREMENTS: no minimum educational requirements are specified but some secondary school education is preferred; up to three months on-the-job training under supervision of head waiter; experience in related jobs such as 6125-126 WAITER.

ADVANCEMENT POSSIBILITIES: Workers who possess supervisory qualities may advance to 6120-126 SUPERVISOR, WAITERS, HOSTESSES AND STEWARDS, FOOD AND BEVERAGE. See also Chapter 610, MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to occupations requiring similar skills such as 6149-122 BUTLER or 6123-110 BARTENDER. Laterial transfers to larger establishments may provide increased remuneration.

OCCUPATIONAL TITLE:

6125-110 WAITER, FORMAL SERVICE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	$\underline{4}$	4	$\underline{4}$	$\underline{4}$	$\underline{3}$	$\underline{4}$	$\underline{3}$	4	4	L456	I	3	5	213	527

6125-B WAITERS, HOSTESSES AND STEWARDS, FOOD AND BEVERAGE 467, 468, 477, 677

WORK PERFORMED: This chapter includes occupations concerned with serving food and beverages in public places such as hotels, clubs, restaurants, cocktail lounges, ships, railway-dining cars and drive-in restaurants. Worker functions include: speaking to customers to take orders for meals and drinks; serving clients by waiting on tables; manipulating serving utensils and tableware; and computing meal charges; accepting payment and making change. Work activities include: reserving and arranging tables, greeting and seating customers, and assisting them in choice of food and beverages.

APTITUDES AND CAPACITIES: learning ability to acquire knowledge of menu items and food service techniques and to apply this knowledge when waiting on customers; numerical ability to compute bills and make change; clerical perception to correctly take down food orders and to avoid errors when computing bills; eye-hand-finger co-ordination and finger dexterity to arrange place settings, handle trays and utensils and garnish or decorate dishes; manual dexterity and ability to reach and make a variety of hand, wrist and arm movements when serving food and removing plates and utensils; physical capacity to perform duties requiring frequent standing and walking, pushing carts, carrying trays of food and stacking dishes; talking and hearing to receive and impart information when performing service duties such as, taking down food orders, adjusting complaints, advising patrons on food and beverages or ordering food from kitchen staff; eye-hand-foot co-ordination to carry loaded trays and serve patrons without spilling food and beverages is required by 6125-118 CAR HOP, and 6125-126 WAITER.

TRAINING AND ENTRY REQUIREMENTS: Hostesses normally require: nine to ten years of general education; up to three months of training and experience as a waitress. Waiters and related workers normally require: eight to nine years of general education; experience in related jobs such as 6198-122 BUS BOY, combined with on-the-job training lasting up to thirty days; or on-the-job training alone ranging from short demonstration to thirty days as required by the complexity of the job.

ADVANCEMENT POSSIBILITIES: Hostesses may advance to other positions involving public contact such as 4171-122 INFORMATION CLERK, that require similar personal qualities and skills. Other workers in Cluster B who have the necessary experience, personal appearance and manner may with further training advance to 6125-110 WAITER, FORMAL SERVICE. Those who possess supervisory ability and experience may advance to 6120-126 SUPERVISOR, WAITERS, HOSTESSES AND STEWARDS, FOOD AND BEVERAGE. See also Chapter 610 MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Hostesses may transfer to occupations requiring similar skills such as 6149-134 COMPANION. Waiters and related workers may transfer to other occupations within the cluster because of similarities in work performed. Some workers may transfer to other occupations requiring a short training period, such as 6129-114 FOOD ASSEMBLER or 6145-122 STEWARD, and 6198-122 BUS BOY or 6198-134 KITCHEN HELPER.

OCCUPATIONAL TITLES:

6125-114	HOSTESS, RESTAURANT OR COFFEE-SHOP
6125-118	CAR HOP
6125-122	COUNTERMAN, LUNCHROOM
6125-126	WAITER
6125-130	CATERER, HELPER
6125-134	COUNTERMAN, CAFETERIA
6125-138	WAITER, CAMP

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	$\underline{4}$ 5	4	4	$\underline{4}$ 5	$\underline{4}$	$\underline{4}$	$\underline{4}$	4	4 5	L456	I	2	3-2	213	523

6133 - CHAMBERMAIDS AND HOUSEMEN

677, 687

WORK PERFORMED: This chapter includes occupations concerned with maintaining hotels, motels, tourist homes, and other lodging facilities in a clean, attractive and orderly condition. The primary worker function is handling cleaning materials and equipment to perform routine housekeeping tasks. Work activities include: making beds, replenishing linens, cleaning rooms and halls and arranging furniture.

APTITUDE AND CAPACITIES: Chambermaids and Housemen require: learning ability to perform housekeeping duties according to simple instructions; form perception to observe that windows, walls and floors are adequately washed, and that brass and chrome is polished; eye-hand-finger co-ordination and manual dexterity to sweep, mop, scrub, wax and polish floors, wash walls and windows, vacuum carpets, polish metalwork, make beds, and sort and fold linen; physical ability to stoop, kneel, crouch and reach while cleaning; agility to climb and maintain balance on ladders while hanging drapes or washing walls, and strength to move heavy furniture is required by 6133-110 HOUSEMAN.

TRAINING AND ENTRY REQUIREMENTS: Chambermaids and Housemen normally require: no specified minimum educational level, but grade eight is usually preferred; up to thirty days on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to more responsible duties and increase their earnings; for example, 6133-110 HOUSEMAN may advance to 6139-110 ATTENDANT, LODGING FACILITIES or to 6149-122 BUTLER; 6113-114 CHAMBERMAID may advance to 6149-114 MAID, DOMESTIC. Experienced workers with supervisory potential may eventually advance to 6130-126 EXECUTIVE HOUSEKEEPER. See also Chapter 610, MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS, for qualifications profile. It is also possible for Chambermaids and Housemen who obtain financial backing to operate boarding and rooming houses or small motels and camps.

TRANSFER POSSIBILITIES: Workers in this chapter may, after a short familiarization or training period, transfer to other occupations requiring similar skills and physical capabilities, such as 6135-114 BELLMAN; 6149-142 FARM HOUSEKEEPER; 6149-146 HANDYMAN; 6191-110 JANITOR: 6191-114 CHARWOMAN; and 6199-130 SANITATION SERVICEMAN.

OCCUPATIONAL TITLES:

6133-110 HOUSEMAN

6133-114 CHAMBERMAID

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	4	4	M-H234	I4	2	3-2	31	31

6135 - SLEEPING-CAR AND BAGGAGE PORTERS, AND BELLMEN

WORK PERFORMED: This chapter includes occupations concerned with handling luggage and providing a variety of related personal services for airline, railroad, motorbus, hotel or motel customers. Worker functions include: attending to the needs and requests of guests and passengers; and transporting luggage, by hand or using handtruck. Work activities include: escorting guests to rooms; preparing sleeping berths; running errands; assisting handicapped persons; delivering messages; and imparting information.

APTITUDES AND CAPACITIES: Porters and Bellmen require: learning ability to understand and apply standard procedures and to perform routine duties; eye-hand-co-ordination to handle luggage quickly; manual dexterity and ability to reach and stoop when picking up luggage, loading handtruck, and making berths; eye-hand-foot co-ordination to prevent tripping or falling when carrying luggage up and down stairs, and for 6135-118 SLEEPING-CAR PORTER, to maintain balance on moving train; physical capacity to stand and walk almost constantly and sufficient strength to perform medium to heavy work; capacity to work outside in varying weather conditions and temperatures, by 6135-110 BAGGAGE PORTER.

TRAINING AND ENTRY REQUIREMENTS: Porters and Bellmen normally require: no specific educational requirements; up to thirty days of familiarization and on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced Baggage Porters and Bellmen with supervisory ability may advance to 6130-118 SUPERVISOR, BAGGAGE PORTERS AND BELLMEN. Experienced Sleeping-Car Porters with supervisory ability may advance to 6130-130 SLEEPING-CAR CONDUCTOR. See also Chapter 610, MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS, for qualifications profiles. Some Bellmen who have the required educational background and a sound knowledge of hotel operations and practices may advance to more responsible positions such as 4194-110 HOTEL CLERK.

TRANSFER POSSIBILITIES: Porters and Bellmen may transfer to occupations in other chapters which do not require extensive training, such as 6193-110 ELEVATOR OPERATOR, 6198-150 DOORMAN, and 6125-126 WAITER.

OCCUPATIONAL TITLES:

6135-110	BAGGAGE PORTER	6135-118	SLEEPING-CAR PORTER
6135-114	BELLMAN		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	$\underline{4}$	4	$\underline{4}$	$\underline{4}$	5	M-H2345	I-B	2	2	321	23
			4							$\underline{3}$	4						

6141-B FUNERAL DIRECTORS, EMBALMERS AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with arranging funerals and burials, embalming human corpses, and related duties. Worker functions include: co-ordinating activities for the preparation and implementation of funerals; compiling relevant information on the deceased; supervising embalmers and funeral attendants; serving and assisting mourners; and working precisely when preparing body for interment. Work activities include: arranging time and place of service; contacting clergy and cemetery representatives; completing official documents, and publishing death notices; providing transportation for mourners and body; washing and draining body of natural fluids and other substances; restoring body to give life-like appearance; arranging coffin, lights and flowers in chapel; and issuing and storing funeral equipment.

APTITUDES AND CAPACITIES: learning ability to acquire and apply techniques of embalming; spatial perception to restore disfigured bodies to their normal appearance, and for knowledge of anatomy required to embalm bodies; form perception to apply cosmetics to impart life-like appearance to body; eye-hand-finger co-ordination, manual and finger dexterity to wash body, pack orifices with cotton, close incisions, dress the body and apply cosmetics; colour discrimination to apply cosmetics to bodies; physical strength to lift corpses with aid of other workers; ability to perform in atmosphere of noxious odours, such as those of embalming fluids.

TRAINING AND ENTRY REQUIREMENTS: eleven to twelve years of general education; a two to three year apprenticeship program under the direction of a licensed embalmer which may be supplemented by part-time courses of study; completion of licensing requirements.

ADVANCEMENT POSSIBILITIES: Workers who have the necessary experience and ability may advance to 6141-110 FUNERAL DIRECTOR.

TRANSFER POSSIBILITIES:

There is no transfer pattern for these occupations.

OCCUPATIONAL TITLE:

6141-114 EMBALMER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	3	3	5	3	M347	I7	4	6	931	CY

6141-C FUNERAL DIRECTORS, EMBALMERS AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with arranging funerals and burials, embalming human corpses, and related duties. Worker functions include: co-ordinating activities for the preparation and implementation of funerals; compiling relevant information on the deceased; supervising embalmers and funeral attendants; serving and assisting mourners; and working precisely when preparing body for interment. Work activities include: arranging time and place of service; contacting clergy and cemetery representatives; completing official documents, and publishing death notices; providing transportation for mourners and body; washing and draining body of natural fluids and other substances; restoring body to give life-like appearance; arranging coffin, lights and flowers in chapel; and issuing and storing funeral equipment.

APTITUDES AND CAPACITIES: learning ability to perform a variety of routine duties in connection with funerals; verbal ability to direct mourners at funeral; spatial perception to prepare parlour or chapel for funeral service; form perception to observe details when arranging floral displays and lighting around casket; eye-hand-finger co-ordination to move casket and other articles used at funerals, arrange flowers and close casket; eye-hand-foot co-ordination to carry flowers to hearse and place casket in parlour; strength to perform work requiring frequent lifting of equipment and casket usually with assistance of other workers.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; and up to one month of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers who follow an apprenticeship program may advance to Embalmers.

TRANSFER POSSIBILITIES: Transfer may be to some occupations such as 6149-154 USHER.

OCCUPATIONAL TITLE:

6141-118 FUNERAL ATTENDANT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	4	4	4	M47	B	2	2	32	35

6143-A BARBERS, HAIRDRESSERS AND RELATED OCCUPATIONS

474, 674

WORK PERFORMED: This chapter includes occupations concerned with providing barbering, hairdressing, cosmetic and other beauty or personal services to improve the appearance of patrons. Worker functions include: comparing facial characteristics and features of patron's hair to assess effects of beauty treatments of hair styling on appearance; manipulating combs, scissors, clippers and brushes and other devices used for the care of hair and skin; and working to close tolerances when shaving whiskers or removing hair by electrolysis. Work activities include: applying cosmetics and make-up; trimming and shaping beards and moustaches; cutting, shampooing, colouring, curling, waving and styling hair; shaping and colouring eyebrows; massaging scalp; and cleaning, shaping and polishing fingernails.

APTITUDES AND CAPACITIES: learning ability to understand and use the techniques of make-up, barbering and cosmetology; spatial perception to style hair to structural characteristics of patron's head and face, and to apply make-up to alter facial features; form perception to observe detail in skin and facial features, and condition of hair; eye-hand-finger co-ordination to apply cosmetics, style and tints hair, shape eyebrows, beards and moustaches, and fit hair pieces; finger dexterity to use scissors, curlers, pins and tweezers; manual dexterity to shampoo cut and curl hair, and give facial and skin massages; colour discimination to recognize and select a harmonious, contrasting or particular shade of dye, tint or make-up; physical stamina to continuously work in a standing position with the hands and arms extended..

TRAINING AND ENTRY REQUIREMENTS: eight to twelve years of general education; a one to three year apprenticeship program; or a one to three year program at a vocational school and on-the-job training; completion of provincial certification or licensing requirements. Additionally, for 6143-110 MAKE-UP ARTIST there are no specified educational or training requirements. Experience is usually acquired by working on the job for one or more years, depending on the complexity of the productions.

ADVANCEMENT POSSIBILITIES: Workers who build a reputation may advance to similar position in other establishments offering increased remuneration. Those with supervisory ability and leadership qualities may advance to supervisors or shop managers; others may become demonstrators or representatives for cosmetic companies. Those who acquire managment ability and knowledge in business practices may become self-employed. With further training some may become instructors or teachers.

TRANSFER POSSIBILITIES: Without additional training there is little possibility of transfer within or outside this chapter.

OCCUPATIONAL TITLES:

6143-110	MAKE-UP ARTIST	6143-118	COSMETOLOGIST
6143-114	BARBER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	2	4	3	3	3	5	2	L47	I	4-3	6	280	95X
					3			2			4						

6143-B BARBERS, HAIRDRESSERS AND RELATED OCCUPATIONS 671, 674

WORK PERFORMED: This chapter includes occupations concerned with providing barbering, hairdressing, cosmetic and other beauty or personal services to improve the appearance of patrons. Worker functions include: comparing facial characteristics and featues of patron's hair to assess effects of beauty treatments or hair styling on appearance; manipulating combs, scissors, clippers and brushes and other devices used for the care of hair and skin; and working to close tolerances when shaving whiskers or removing hair by electrolysis. Work activities include: applying cosmetics and make-up; trimming and shaping beards and moustaches; cutting, shampooing, colouring, curling, waving and styling hair; shaping and colouring eyebrows; massaging scalp, and cleaning, shaping and polishing fingernails.
APTITUDES AND CAPACITIES: learning ability to understand and use the techniques of electrolysis, and scalp treatments; form perception to assess scalp condition, and to remove hairs through electrolysis; eye-hand-finger co-ordination to remove hair from follicle, and apply scalp medication; finger dexterity to use needles and tweezers; manual dexterity to make flexible hand and wrist movements when using vibrators and electrolysis equipment, or massaging scalp; physical stamina to stand and perform work which requires continuous reaching and extending of the arms.
TRAINING AND ENTRY REQUIREMENTS: eight to twelve years of general education; a three to twelve-month program of vocational training, usually provided by the employers combined with on-the-job training.
ADVANCEMENT POSSIBILITIES: Competent workers in this chapter who build a reputation may advance to similar positions in other establishments offering increased remuneration. Those with supervisory ability and leadership qualities may advance to supervisors or shop managers; others may become demonstrators or representatives for cosmetic companies. Those who acquire management ability and knowledge in business practices may become self-employed. With further training some may become instructors or teachers.
TRANSFER POSSIBILITIES: Without additional training there is little possibility of transfer within or outside this chapter.
OCCUPATIONAL TITLES:

6143-122 ELECTROLOGIST	6143-130 SCALP-TREATMENT SPECIALIST

QUALIFICATION PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	2	4	3	3	3	5	4	L47	I	4-3	5-3	2	5Y
				4	3												

6143-C BARBERS, HAIRDRESSERS AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with providing barbering, hairdressing, cosmetic and other beauty or personal services to improve the appearance of patrons. Worker functions include: comparing facial characteristics and features of patron's hair to assess effects of beauty treatments or hair styling on appearance; manipulating combs, scissors, clippers and brushes and other devices used for the care of hair and skin; and working to close tolerances when shaving whiskers or removing hair by electrolysis. Work activities include: applying cosmetics and make-up; trimming and shaping beards and moustaches; cutting, shampooing, colouring, curling, waving and styling hair; shaping and coloring eyebrows; massaging scalp; and cleaning, shaping and polishing fingernails.

APTITUDES AND CAPACITIES: learning ability to acquire and apply manicuring techniques; form perception to determine nail and cuticle condition; eye-hand-finger co-ordination to shape and trim fingernails and toenails; finger dexterity to use cuticle knife, scissors, files, emery board and nail polish brush; manual dexterity and ability to reach when cleaning and polishing nails and applying hand creams; colour discrimination to distinguish between various shades of nail polish.

TRAINING AND ENTRY REQUIREMENTS: up to three months training at a vocational school combined with on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers who build a reputation may advance to similar positions in other establishments offering increased remuneration. Those with supervisory ability and leadership qualities may advance to supervisors or shop managers; others may become demonstrators or representatives for cosmetic companies. Those who acquire management ability and knowledge in business practices may become self-employed. With further training some may become instructors or teachers.

TRANSFER POSSIBILITIES: Without additional training there is little possibility of transfer within or outside this chapter.

OCCCUPATIONAL TITLES:

6143-126 MANICURIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	3	5	3	3	3	5	4	S47	I	2	3	23	35

6144 - GUIDES

168, 643, 667

WORK PERFORMED: This chapter includes occupations concerned with escorting people on sightseeing visits, travel tours and excursions. Worker functions include: co-ordinating transportation, accommodation, recreation and other arrangements for sightseers; describing points of interest, and historical and other pertinent information along tour routes and in public or historical buildings, museums and industrial plants; and driving sightseeing vehicles. Work activities include: communicating with agencies to make or confirm reservations concerning transportation, accommodation and recreational activities; and collecting tour tickets or fees.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to acquire, understand and retain information concerning points of interest, historical and other pertinent data related to a sightseeing tour, public building, or an industrial establishment's products, processes or services; verbal ability to communicate effectively with personnel of transportation agencies and hotel establishments concerning travel arrangements and reservations, and to clearly describe things of interest to patrons of tours. Additionaly, for 6144-110 GUIDE, TRAVEL: clerical perception to observe times, dates, locations, and other details in correspondence concerning travel arrangements. Additionally, for 6144-114 GUIDE, SIGHTSEEING: spatial perception, manual dexterity and eye-hand-foot co-ordination to drive vehicles.

TRAINING AND ENTRY REQUIREMENTS: Guides normally require: ten to twelve years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced Travel Guides may advance to 4193-122 TRAVEL CLERK, or if qualified by related experience and demonstrated ability, to 4193-110 TRAVEL AGENT. Sightseeing Guides may advance to 9171-110 BUS DRIVER.

TRANSFER POSSIBILITIES: Transfer for Travel Guides may be to 4193-118 TICKET CLERK. Sightseeing Guides and Establishment Guides may transfer to other public-contact work, such as 4171-122 INFORMATION CLERK.

OCCUPATIONAL TITLES:

6144-110 GUIDE, TRAVEL
6144-114 GUIDE, SIGHTSEEING
6144-118 GUIDE, ESTABLISHMENT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	4	3	4	3	4	4	L5	B	3-2	4-3	26	145
		4	3	3		3	4	5	4	3							25
							5		5								

6145-A HOSTESSES AND STEWARDS, EXCEPT FOOD AND BEVERAGE

WORK PERFORMED: This chapter includes occupations concerned with providing recreational and personal services for the comfort, welfare and safety of passengers on board ships, airplanes, trains or buses, and for guests in hotels and resorts. Worker functions include: planning and co-ordinating recreational programs; compiling information on the interests of guests, destinations of passengers and meal and beverage inventories; talking to convey or obtain information; attending to individual needs of passengers; and handling supplies and personal belongings. Work activities include: greeting passengers and guests; assisting passengers to locate seats; demonstrating use of safety equipment; preparing records and reports; serving meals and beverages; checking cabin for general condition and supplies; and performing housekeeping tasks.

APTITUDES AND CAPACITIES: learning ability to understand and apply the principles and techniques used in planning and organizing recreational activities and to effectively supervise and co-ordinate programs; verbal ability to communicate effectively with people at all levels to promote recreational facilities and services, and to ascertain interests of group.

TRAINING AND ENTRY REQUIREMENTS: eleven to twelve years of general education; three to six months of on-the-job training under guidance of an experienced social director; or experience in related jobs such as camp counsellor, playground leader or swimming instructor combined with a short period of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers who have the necessary skills, and who obtain further training may be to occupations such as 2333-122 RECREATION LEADER or 2333-110 RECREATION DIRECTOR.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations which involve dealing with the public, such as 3715-130 ATTENDANT, RECREATIONAL FACILITY; 4171-122 INFORMATION CLERK; and 2333-126 CAMP COUNSELLOR.

OCCUPATIONAL TITLE:

6145-110 SOCIAL DIRECTOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	4	4	4	4	4	5	L	B	3	4	42	4951

6145-B HOSTESSES AND STEWARDS, EXCEPT FOOD AND BEVERAGE

WORK PERFORMED: This chapter includes occupations concerned with providing recreational and personal services for the comfort, welfare and safety of passengers on board ships, airplanes, trains or buses, and for guests in hotels and resorts. Worker functions include: planning and co-ordinating recreational programs; compiling information on the interests of guests, destinations of passengers and meal and beverage inventories; talking to convey or obtain information; attending to individual needs of passengers; and handling supplies and personal belongings. Work activities include: greeting passengers and guests; assisting passengers to locate seats; demonstrating use of safety equipment; preparing records and reports; serving meals and beverages; checking cabin for general condition and supplies; and performing housekeeping tasks.

APTITUDES AND CAPACITIES: learning ability to understand and apply the regulations, standards and procedures relating to their in-flight and ground duties; verbal ability to communicate effectively when instructing passengers in safety and emergency prodedures and in Customs and Immigration regulations, and when answering queries regarding transportation connections and schedules; clerical perception to prepare accurate enroute reports, correctly read schedules and timetables, and observe pertinent detail when verifying boarding passes; manual dexterity to move the hands easily and skilfully when reaching for and handling trays, glasses and bottles; eye-hand-foot co-ordination to maintain balance during flight while serving passengers; ability to stoop, kneel and crouch when assisting handicapped passengers into seats, administering first aid, and tidying the cabin; physical ability to stand for extended periods during flight; ability to work while exposed to noise from engines and changes in atmospheric pressure.

TRAINING AND ENTRY REQUIREMENTS: eleven to twelve years of general education; up to three months training consisting of courses provided by the airlines and on-the-job experience under guidance of experienced personnel.

ADVANCEMENT POSSIBILITIES: Workers who are Stewardesses and who have the necessary experience and initiative may become Pursers. Pursers and Stewardesses with leadership qualities may with further training occupy senior positions such as recruitment representative or 2797-138 INSTRUCTRESS, AIRLINE STEWARDESS.

TRANSFER POSSIBILITIES: Workers may transfer to other divisions of the airline and occupy positions such as 4171-122 INFORMATION CLERK: 4193-114 RESERVATION CLERK or 4193-118 TICKET CLERK. Workers may also find similar employment which does not involve additional extensive training in other organizations such as bus companies, shipping or railway lines, hotels and restaurants.

OCCUPATIONAL TITLES:

6145-114 PURSER	6145-118 STEWARDESS, AIRLINE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	3	4	4	3	3	5	L23456	I567	3	3	2	598

6145-C HOSTESSES AND STEWARDS, EXCEPT FOOD AND BEVERAGE

WORK PERFORMED: This chapter includes occupations concerned with providing recreational and personal services for the comfort, welfare and safety of passengers on board ships, airplanes, trains or buses, and for guests in hotels and resorts. Worker functions include: planning and co-ordinating recreational programs; compiling information on the interests of guests, destinations of passengers and meal and beverage inventories; talking to convey or obtain information; attending to individual needs of passengers; and handling supplies and personal belongings. Work activities include: greeting passengers and guests; assisting passengers to locate seats; demonstrating use of safety equipment; preparing records and reports; serving meals and beverages; checking cabin for general condition and supplies; and performing housekeeping tasks.

APTITUDES AND CAPACITIES: learning ability to understand and follow instructions concerning cleaning services and passenger accommodations on board ship; eye-hand-finger co-ordination when making beds and berths, and washing dishes and cleaning cabins; manual dexterity to reach for and easily handle luggage and cleaning equipment; ability to balance and adapt to motion of ship while performing duties, and to stoop and kneel while cleaning cabins, staterooms and public areas.

TRAINING AND ENTRY REQUIREMENTS: nine years of general education; up to three months of on-the-job training under guidance of the chief steward.

ADVANCEMENT POSSIBILITIES: Stewards who have the capacity for more involved tasks may advance to the position of chief steward, cashier or bar steward on board ship.

TRANSFER POSSIBILITIES: Workers may transfer to occupations requiring similar skills, such as 6133-110 HOUSEMAN; 6135-118 SLEEPING-CAR PORTER or 6139-110 ATTENDANT, LODGING FACILITIES.

OCCUPATIONAL TITLE:

6145-122 STEWARD

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	4	5	L234	I	2	3	13	35

6147 - BABYSITTERS

WORK PERFORMED: This chapter includes occupations concerned with caring for children in private residences, during the temporary absence of parents or guardians. Worker functions include: attending to the personal needs of children; and performing some domestic housekeeping duties. Work activities include: preparing meals; reading stories, playing games with children; feeding, bathing and dressing children; and laundering clothes.

APTITUDES AND CAPACITIES: Babysitters require: learning ability to acquire and apply knowledge of child care; verbal ability to comprehend and follow parents' instructions and to communicate effectively with children; eye-hand-finger co-ordination when preparing meals, dressing children, pressing garments and feeding babies; capacity to stoop, kneel, crouch and extend the arms to pick up babies and to tidy up and clean home.

TRAINING AND ENTRY REQUIREMENTS: Babysitters normally require: one to three months experience usually obtained by caring for members of their own family.

ADVANCEMENT POSSIBILITIES: Babysitters may advance to occupations in Chapter 3135, NURSING AIDES AND ORDERLIES; if they have the necessary educational background and obtain specialized training.

TRANSFER POSSIBILITIES: Babysitters who are interested in caring for children or attending elderly or confined adults may transfer to other occupations such as 6149-118 FOSTER MOTHER, 6149-130 CHILD-CARE ATTENDANT, and 6149-134 COMPANION.

OCCUPATIONAL TITLES:

6147-110 BABYSITTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	4	5	4	L3456	I	3	3	41	53

6161 - LAUNDERING OCCUPATIONS 485, 684, 685

WORK PERFORMED: This chapter includes occupations concerned with washing and drying garments and textile furnishings in commercial laundry establishments. Worker functions include: computing laundering time-cycles and quantities of washing ingredients according to type and weight of fabric; tending washing, carding, winding and extracting machines; manipulating hand irons; and handling and sorting articles for laundering. Work activities include: shaking, folding and wrapping articles; loading and unloading machines; adding washing ingredients; and adjusting rolls and setting timers.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to acquire and apply knowledge of fabrics and techniques of laundering; eye-hand-co-ordination to make adjustments to machines, and to press articles with hand iron; manual dexterity to untie laundry bundles, load and unload machines, carts and baskets, wash and remove soil from fragile articles by hand, and hang articles to dry; physical capacity to stand continuously, and sufficient strength to push handtruck, position power hoist, and lift and carry laundry bundles and rolls weighing up to fifty pounds; ability to work inside with damp articles in a moisture-saturated atmosphere and in extreme heat during summertime; capacity to work while exposed to loud, steady noises from washing, drying and extracting machines; ability to stoop is required for 6161-118 WASHER, HAND to hand-launder fragile articles.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: six to ten years of general education; and up to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this chapter with supervisory ability may advance to 6160-114 FOREMAN, LAUNDERING, DRY-CLEANING AND PRESSING OCCUPATIONS. See also Chapter 610, MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS, for qualifications profile. Experienced workers may successfully operate their own laundry service provided they have adequate finances and have acquired a knowledge of business practices.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations requiring similar skills in Chapters 6163, DRY CLEANING OCCUPATIONS; 6165, PRESSING OCCUPATIONS; and 6198, OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK, SERVICES; or in Group 6169, APPAREL AND FURNISHINGS SERVICE OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

6161-110	WASHING-MACHINE TENDER
6161-114	LAUNDRYMAN
6161-118	WASHER, HAND
6161-122	BLANKET FINISHER
6161-126	CONTINUOUS-TOWEL ROLLER
6161-130	EXTRACTOR TENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	4	4	M-H34	I345	3-2	4-2	319	23Y
			4				3			3							

6163-A DRY CLEANING OCCUPATIONS

384, 465, 684

WORK PERFORMED: This chapter includes occupations concerned with cleaning garments, fur and textile furnishings in commerical dry cleaning establishments. Worker functions include: compiling information pertaining to dry cleaning processes; manipulating brushes, sprays and applicators of chemical spot removers; and tending dry cleaning machines and solvent filtering equipment. Work activities include: sorting, examining and weighing articles; loading and unloading cleaning drums; and adjusting machine controls.

APTITUDES AND CAPACITIES: learning ability to acquire and apply knowledge of fabrics and techniques of dry cleaning and stain removel; eye-hand co-ordination to sort and weigh articles, and make adjustments to machines; manual dexterity to load and unload machines, rub articles with brush or sponge, and use steam gun or air hose to remove stains; strength to lift articles weighing up to fifty pounds; adaptability to hot and humid conditions, to odours and fumes from various cleaning compounds, and to hazardous solvents which may promote skin irritations; capacity to work while exposed to constant noise from dry cleaning machines; form perception to inspect furs and fabrics for damage, and to examine and identify types of stains or defects in textile furnishings; colour discrimination to restore colour to over-bleached or stained areas.

TRAINING AND ENTRY REQUIREMENTS: nine or ten years of general education; and completion of a two year apprenticeship program which may be provincially regulated; or an occupational training course, plus on-the-job training, lasting up to six months; or four to six months of on-the-job training only.

ADVANCEMENT POSSIBILITIES: Those who have a sound knowledge of dry-cleaning techniques, and who possess supervisory abilities may advance to appropriate occupations in Unit Group 6160 SUPERVISORS, APPAREL AND FURNISHINGS SERVICE OCCUPATIONS. See also Chapter 610 MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer between occupations within this cluster or to other occupations requiring similar skills such as 6169-110 DYER.

OCCUPATIONAL TITLES:

6163-110	DRY CLEANER	6163-118	SPOTTER
6163-114	FUR CLEANER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4 5	4	3	4 5	4	4	3	4 5	3	L-M47	I457	3	5-4	913	9Y

6165 - PRESSING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with machine or hand pressing clothing, textile furnishings and similar articles. The primary worker function is manipulating items into position for pressing on padded table, form or ironing board, and operating controls of pressing equipment. Work activities include: hand ironing difficult or delicate pieces; measuring dimensions of garments and textile furnishings; and examining, folding, stacking or hanging articles after pressing.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand instructions and follow directions for machine or hand-pressing work, and to become familiar with qualities of fabrics; form perception to correctly position and shape garments and textile furnishings on pressing equipment, and to observe irregularities when inspecting garment after pressing; eye-hand-finger co-ordination and manual dexterity to operate pressing machines, manipulate hand-irons, and handle garments, flatwork and other articles; finger dexterity to manipulate small objects and materials when blocking and pressing garments, attaching household articles to stretchers, and feeding flatwork into pressing machines; eye-hand-foot co-ordination to work with machines having hand and foot controls; physical capacity to perform work while constantly standing; visual acuity to avoid scorching, and to ensure smooth finish and satisfactory appearance of finished articles; capacity to work in hot humid conditions, in proximity to loud noises from pressing machines, and when exposed to physical hazards such as burns from hot equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: elementary school education; up to three months of on-the-job training depending on previous experience.

ADVANCEMENT POSSIBILITIES: Workers in this cluster who demonstrate skill and ability may, with further training, advance to occupations such as 6163-110 DRY CLEANER or 6163-118 SPOTTER. Those who have supervisory ability may advance to appropriate occupations in Unit Group, 6160, SUPERVISOR, APPAREL AND FURNISHINGS SERVICE OCCUPATIONS. See also Chapter 610, MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS, for qualifications profiles. Experienced workers with financial backing may operate their own pressing or dry-cleaning shop, provided they have knowledge of business practices.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations requiring similar skills and training found in Chapter 6161, LAUNDERING OCCUPATIONS; and Group 6169, APPAREL AND FURNISHINGS SERVICE OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

6165-110	BLOCKER
6165-114	SILK FINISHER
6165-118	GLOVE FINISHER
6165-122	PRESSER, HAND
6165-126	PRESSER, MACHINE
6165-130	STRETCHER-DRIER
6165-134	FLATWORK FINISHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	3	3	3	5	5	L47	I456	2	3-2	219	23Y
			5		3	5	4	4		4	4						

6191 - JANITORS, CHARWORKERS AND CLEANERS 664, 687

WORK PERFORMED: This chapter includes occupations concerned with cleaning building interiors, furnishings and equipment, and performing minor maintenance duties. Worker functions include: manipulating cleaning implements, and operating polishers and other powered equipment; and handling dusters, cleaning materials and supplies. Work activities include: sweeping, mopping and waxing floors; vacuuming rugs and carpets; cleaning ceilings, walls, fixtures and trim; polishing furniture; cleaning windows, washrooms and venetian blinds; doing minor painting and carpentry or other maintenance work; emptying trash receptacles; clearing sidewalks and driveways; and gardening.

APTITUDES AND CAPACITIES: Janitors, Charworkers and Cleaners require: learning ability to understand and follow simple instructions; form perception to inspect surfaces and objects for dust, dirt and grease; eye-hand co-ordination to operate a variety of cleaning equipment and to perform minor repairs; finger dexterity to work with cleaning aids and small hand tools; manual dexterity to clean, dust and polish; strength to lift objects such as furniture and equipment weighing up to fifty pounds; agility to work in awkward positions such as stooping, kneeling, crouching and reading to apply cleaning solutions, and to make repairs, and work in garden; eye-hand-foot co-ordination for 6191-110 JANITOR and 6191-122 WINDOW CLEANER to balance on ladder while cleaning walls, ceilings and windows.

TRAINING AND ENTRY REQUIREMENTS: Janitors, Charworkers and Cleaners normally require: six or fewer years of general education; up to four weeks of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this chapter with supervisory ability may advance to 6190-110 FOREMAN, JANITORS, CHARWORKERS AND CLEANERS. See also Chapter 610, MANAGING SUPERVISORS AND SUPERVISORS, SERVICE OCCUPATIONS, for qualifications profile. Advancement may also be to 8799-104 MAINTENANCE MAN, BUILDING for those janitors who are skilled and able to assume more responsibilities.

TRANSFER POSSIBILITIES: Transfer may be to other occupations within this chapter or to 6149-146 HANDYMAN, and to appropriate occupations in Group 6199, OTHER SERVICE OCCUPATIONS, N.E.C. for individuals with the necessary qualifications.

OCCUPATIONAL TITLES:

6191-110	JANITOR	6191-120	VENETIAN-BLIND CLEANER AND REPAIRER
6191-114	CHARWOMAN		
6191-118	CLEANER, INDUSTRIAL PLANT	6191-122	WINDOW CLEANER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	$\underline{4}$	5	$\underline{3}$	$\underline{4}$	$\underline{3}$	4	5	M-H34	I-B	2-1	2	31	23
			4		$\underline{3}$	4	$\underline{4}$		$\underline{3}$								

6193 - ELEVATOR-OPERATING OCCUPATIONS

663, 668

WORK PERFORMED: This chapter includes occupations concerned with transporting passengers and freight between floors by means of elevators. Worker functions include: speaking to passengers to give information; and operating elevators by pressing buttons or moving levers. Work activities include: assisting passengers on and off cars; indicating location of elevator and directing passengers; and opening elevators doors and safety gates.

APTITUDES AND CAPACITIES: Elevator Operators and Elevator Starters require: learning ability to understand and apply instructions for operating elevators; verbal ability to communicate with passengers, to comprehend their requests and to provide information and directions clearly; spatial perception to visualize the movement of elevator to ensure that it stops level with each floor; eye-hand co-ordination and manual dexterity to control the movement and accurately stop elevators; capacity to work in small, confined area and stand for extended periods.

TRAINING AND ENTRY REQUIREMENTS: Elevator Operators and Elevator Starters normally require: six to eight years of general education; up to one month of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this chapter with supervisory ability may advance to appropriate occupations in 6190-199 MISCELLANEOUS SUPERVISORS, OTHER SERVICE OCCUPATIONS.

TRANSFER POSSIBILITIES: Transfers are usually between the two occupations in this chapter. Transfer to other service occupations such as 6135-114 BELLMAN or 6198-114 CHECKROOM ATTENDANT is also possible.

OCCUPATIONAL TITLES:

6193-110 ELEVATOR OPERATOR	6193-114 ELEVATOR STARTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	4	5	5	M46	I	2	2	23	23
							4	5									

6198 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK, SERVICES

677, 687, 877, 886, 887

WORK PERFORMED: This chapter includes labouring and other elemental work occupations, primarily found in service establishments. Worker functions include: handling objects and materials, requiring the use of body members and hand tools to perform essentially manual work; and attending to the personal needs or requests of others. Work activities include: serving clients in checkrooms or shower rooms; shining shoes; replenishing food and beverage supplies at bars; carrying dishes and other supplies to and from dining rooms; washing dishes, shaking out and folding laundered articles; maintaining supplies in a beauty salon; and opening doors for patrons of hotels or other establishments.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply simple instructions; form perception to sort items, and to inspect them for defects or improper finish; eye-hand-finger co-ordination and manual dexterity to easily and skilfully handle goods, process garments and materials, and work with cleaning utensils and tools; physical capacity to perform work requiring continuous reaching, handling and fingering of objects and materials, and frequent stooping or kneeling to perform cleaning duties; adaptability to moisture and high humidity conditions for workers in laundries and kitchens.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: no specific educational level; from a short demonstration up to thirty days of on-the-job familiarization; for 6198-126 CLEANER, VEHICLE a chauffeur's licence.

ADVANCEMENT AND TRANSFER POSSIBILITIES: These occupations are considered entry jobs, and transfer and advancement is to more highly skilled occupations for workers who demonstrate ability, interest and initiative.

OCCUPATIONAL TITLES:

6198-110	BOOTBLACK
6198-114	CHECKROOM ATTENDANT
6198-118	BAR BOY
6198-122	BUS BOY
6198-126	CLEANER, VEHICLE
6198-130	FREIGHT-CAR CLEANER
6198-134	KITCHEN HELPER
6198-138	LAUNDRY LABOURER
6198-142	SUPPLY GIRL, BEAUTY SALON
6198-144	TANK CLEANER
6198-146	ATTENDANT, HOT-ROOM
6198-150	DOORMAN
6198-154	FEATHER RENOVATOR
6198-158	FOLDER, LAUNDRY
6198-162	SHAKER, LAUNDRY

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	5	5	L-M34	I4	1	2	13	23
		5	4	5		4			4	4							

711A - FARMERS

133, 134

WORK PERFORMED: This chapter includes occupations concerned with operating general or specialized farms on an ownership, rental or other contract basis to produce a variety of agricultural, horticultural and animal-husbandry products, or to produce a particular product. Worker functions include: determining kind and amounts of crops to be grown or livestock to be raised, and planning and co-ordinating farm activities; supervising farm workers in preparation of land, planting and harvesting crops, and breedings and care of livestock; and driving and operating farm machinery; hiring and training workers; immunizing livestock and poultry against disease; treating sickness and injuries; marketing farm produce, and keeping records of production, operating costs and other farm data.

APTITUDES AND CAPACITIES: Farmers require: learning ability to understand the principles and apply the techniques of farming to achieve productive and profitable farming operations; spatial perception to operate farm vehicles, plan layout of crops, and repair farm machinery; eye-hand-co-ordination and manual dexterity to use hand tools and sprayers, sort produce, and repair farm equipment and buildings; eye-hand-foot co-ordination to actuate levers, pedals and controls to drive and operate farm machinery; strength to perform medium to heavy work requiring frequent lifting of objects weighing up to fifty pounds; capacity to work in crouching, stooping and kneeling positions, for example when transplanting seedlings, picking vegetables or examining animals.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; two years or more in a agricultural program in a community college or university; or two to six years of on-the-job training, or practical experience gained through farm upbringing.

ADVANCEMENT POSSIBILITIES: Since farmers are usually owner-operators, normal advancement criteria are not applicable, however, advancement may come by enlargement of the establishment or other business arrangement.

TRANSFER POSSIBILITIES: Successful and experienced farmers who have managerial and administrative skills and other necessary attributes may transfer to appropriate occupation in Chapter 7131 FARM MANAGEMENT OCCUPATIONS.

OCCUPATIONAL TITLES:

7111-110	FARMER, GENERAL
7113-110	APIARIST
7113-114	BREEDER, HORSE
7113-118	FARMER, POULTRY, EGG PRODUCTION
7113-122	FARMER, POULTRY, MEAT PRODUCTION
7113-126	FARMER, BEEF CATTLE
7113-130	FARMER, DAIRY
7113-134	FARMER, HOG
7113-138	FARMER, SHEEP
7113-142	FEEDLOT FINISHER
7113-146	FARMER, FUR
7115-110	FARMER, FRUIT
7115-114	FARMER, TOBACCO
7115-118	GROWER, MUSHROOM
7115-122	FARMER, GRAIN
7115-126	FARMER, NURSERY
7115-130	FARMER, POTATO
7115-134	FARMER, DOS
7115-138	FARMER, VEGETABLE
7115-142	GROWER, FLOWER
7115-146	GROWER, HOP
7115-150	GROWER, SEED

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	3	3	4	3	3	4	M-H347	B67	4	8-6	1097	41095
								3		4	3						

711B - BREEDERS, SMALL DOMESTIC ANIMALS 134, 174

WORK PERFORMED: This chapter includes occupations concerned with raising dogs and cats for breeding stock or pets, and rabbits for sale of meat. Worker functions include; determining kind and number of animals to be raised, and co-ordinating purchasing, marketing and other activities; attending to the needs of animals; and supervising workers. Work activities include: feeding, watering and grooming animals; cleaning and disinfecting enclosures; providing medications; supplying suitable housing for mothers and young; treating animals to control insect pests; and recording breeding data.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the distinguishing traits, qualities and heredity of small domestic animals, and to apply judgment in their breeding, nutrition and care; form perception to examine animals for indications of disease or infestations by animal pests, and to groom animals for show; eye-hand-finger co-ordination and manual dexterity to feed, water, wash, clip, groom and otherwise care for animals; capacity for stooping and kneeling to feed animals and remove or transfer them between enclosures.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; one to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Most breeders of small domestic animals, whether full or part-time, are self employed. Therefore advancement is usually a matter of personal choice when deciding on enlargement of business, formation of a partnership or some other business arrangement.

TRANSFER POSSIBILITIES: Similarly, transfer would normally be limited to changing from one type of animal to another or, perhaps, to an occupation such as manager of a retail pet shop, 5130 MANAGING SUPERVISOR, RETAIL STORE. See also Chapter 510, MANAGING SUPERVISOR AND SUPERVISORS, SALES OCCUPATIONS, for qualifications profile.

OCCUPATIONAL TITLES:

7113-150	BREEDER, DOG
7113-154	BREEDER, CAT
7113-158	BREEDER, RABBIT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	3	3	3	3	3	5	4	L347	B	3	6-5	1709	410

7131 - FARM MANAGEMENT OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with planning, organizing, directing and controlling the operation of farms or farm holdings on behalf of owners. Worker functions include: co-ordinating farm activities; analyzing market conditions and trends; compiling financial and other reports; negotiating or conferring with owner to formulate policies, programs and plans; and supervising activities of foremen and other workers. Work activities include: interviewing and hiring workers; purchasing machinery and supplies; and marketing farm products.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and evaluate market conditions and judgment to make decisions relative to the planning and organizing of farming and business activities; verbal ability to communicate effectively with employers, farm workers and customers, orally or in writing, and to understand and use agricultural terminology; numerical ability to make computations for cost and production estimates and reports, and for pricing of products; spatial perception, for landscaping managers, to prepare proposals containing sketches and layout of grounds; clerical perception to prepare detailed reports, and to avoid computational errors when preparing financial and production analyses.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: twelve to thirteen years of general education; a two-year diploma program in a college offering courses in agricultural production and management; two to four years of related experience at the foreman or assistant manager level. Farm managers of large multi-unit corporate farms may be require to hold a bachelor's degree in agricultural science plus two to four years of related experience or a significant farming background.

ADVANCEMENT POSSIBILITIES: Advancement for farm managers is usually dependent on the size of the establishment. Managers of multi-unit corporate farms may be appointed to the board of directors or to an equivalent position in a corporation's head or regional office. Managers of single unit establishments may advance to more responsible positions in a larger establishment. Advancement for landscaping managers may be to self-employment depending on their own initiative and drive.

TRANSFER POSSIBILITIES: Managers employed by large corporations may transfer to positions requiring similar skills within the same establishment. Persons employed in farm management occupations may also transfer to 5141-122 TECHNICAL SALESMAN, AGRICULTURAL EQUIPMENT AND SUPPLIES provided they have the necessary skills.

OCCUPATIONAL TITLES:

7131-110 MANAGER, FARM
7131-114 MANAGER, HATCHERY
7131-118 MANAGER, LANDSCAPING

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	4	4	3	4	4	4	5	4	L5	B	4	8-7	265	45091
				2	3												

7181 - GENERAL WORKERS, FARM

WORK PERFORMED: This chapter includes occupations concerned with growing field or other crops and raising livestock or poultry on a general farm. Worker functions include: driving and operating farm machinery to plant, cultivate and harvest crops, and operating fixed equipment such as silage cutter, feed mixers, conveyors and stable cleaners; and feeding, watering and attending to the needs of animals and poultry. Work activities include: applying fertilizers and preparing land for sowing; cultivating soil and irrigating growing plants; spraying pesticides and herbicides; harvesting crops; observing stock to detect injuries or disease and providing medications of serums; cleaning and disinfecting barns, animal enclosures and poultry houses; repairing buildings and fences; servicing and repairing farm machinery; and preparing produce for market.

APTITUDES AND CAPACITIES: General farm workers require: learning ability to understand the basic principles of agriculture and to use sound practices in growing crops and caring for livestock and poultry; spatial perception to operate farm machinery, and for such activities as estimating space requirements for storing grain, silage and hay; form perception to visually assess growth and condition of crops, health of livestock, and condition of farm equipment; eye-hand-finger co-ordination for activities such as adjusting farm machinery, and for sorting farm produce; finger dexterity to treat injuries or inoculate animals, and to pick up and position small parts when repairing machinery; manual dexterity to use hand and garden tools and spraying equipment; eye-hand-foot co-ordination to simultaneously steer, and actuate levers, pedals and controls of farm machinery; strength to perform work involving frequent lifting of objects weighing up to twenty pounds; agility to climb ladders and to maintain balance while engaged in activities such as repairing and painting buildings, or picking fruit and pruning fruit trees; capacity to work in stooping, kneeling and crouching positions for activities such as servicing machinery, harvesting vegetables and tending milking machines; visual acuity to detect plant blight and insect pests, depth perception to judge distances when driving machinery and colour vision to determine ripeness of grain or fruit; capacity to work near or operate noisy machinery; capacity to work safely where possibility of injury exists from causes such as falls from ladders or machines, or from accidental contact with cutting mechanisms.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to twelve years of general education; on-the-job training of six months to one year, or practical experience gained during a farm upbringing.

ADVANCEMENT POSSIBILITIES: General farm workers, because of the variety of their duties, may acquire considerable knowledge of a specialized farming activity; consequently, experienced individuals who have supervisory potential may advance to foremen positions in Unit Group 7180, FOREMEN: OTHER FARMING, HORTICULTURAL AND ANIMAL-HUSBANDRY OCCUPATIONS; for example, 7180-114 FOREMAN, FIELD CROP AND VEGETABLE WORKERS and 7180-118 FOREMAN, LIVESTOCK WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: General farm workers, because of similarities in work performed, may transfer to some occupations in Minor Group 718/719 OTHER FARMING, HORTICULTURAL AND ANIMAL-HUSBANDRY OCCUPATIONS; for example 7183-114 FARM WORKER, GRAIN or 7191-110 FARM WORKER, DAIRY.

OCCUPATIONAL TITLES:

7181-110 FARM WORKER, GENERAL

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	3	4	4	3	4	3	3	4	M2347	B56	3	5	19	1Y

7183 - FIELD CROP AND VEGETABLE GROWING WORKERS 682, 683, 687

WORK PERFORMED: This chapter includes occupations concerned with growing field and vegetable crops such as grain, tobacco, carrots and onions. Worker functions include: driving and operating tractors and farm machinery; handling seed, fertilizer and farm produce; examining growing crops for disease, weeds, moisture and maturity, and comparing produce to specified standards to determine grade or quality. Work activities include: planting seeds in greenhouses and transplanting seedlings; mixing and spraying herbicide solutions; thinning row crops; irrigating land; preparing produce for market by bagging, boxing and bunching; and servicing farm machinery.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply instructions relating to the planting, cultivating and harvesting of crops, and to the care and servicing of farm machinery; spatial perception to judge distances and relative positions when operating mobile farm machinery, and to visualize storage space requirements for farm produce; form perception to sort and package produce and to detect bruises or decayed spots, or to assess moisture content of tabacco leaves by observation during curing; eye-hand-finger co-ordination and manual dexterity, for example, to repair farm equipment, buildings, and fences, to use garden tools, to prune plants, and to transplant seedlings by hand; eye-hand-foot co-ordination to actuate levers, pedals and hydraulic controls of machines such as potato pickers and combines; strength to perform medium to heavy work involving frequent lifting of objects such as bagged or crated produce that weigh up to fifty pounds; capacity to work in stooping, kneeling and crouching positions when picking vegetables and transplanting seedlings; near visual acuity when picking, cutting and sorting produce; colour vision to assess ripeness of grain or vegetables crops; for tobacco curers and mushroom farm workers, capacity to work in buildings where temperatures are above normal; for mushroom farm workers, adaptability to work locations where relative humidity is sufficiently high to cause marked discomfort; capacity to work while exposed to disagreeable fumes and odours from sprays or compost fermentation, and dust such as that from threshing machines and combines, or chemicals used for crop dusting that sometimes require use of protective devices.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; for 7183-110 TOBACCO CURER, up to two years of on-the-job training; for the remaining occupations, six months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers may advance to lead hand status, especially during harvest season when they may be required to train seasonal workers. Tobacco workers who have the necessary qualifications may advance to 7183-110 TOBACCO CURER. Advancement for workers with supervisory ability may be to 7180-114 FOREMAN, FIELD CROP AND VEGETABLE WORKERS. Since raising crops is an important activity on some dairy farms, advancement to 7180-110 FOREMAN, DAIRY-FARM WORKERS is also possible. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Since raising field crops is an important activity in several farming specialities, transfers are possible to some occupations in Chapters 7181, GENERAL WORKERS, FARM; 7187, LIVESTOCK WORKERS; 7191, DAIRY WORKERS, FARM; and 7197, FARM MACHINERY OPERATORS AND CUSTOM OPERATORS.

OCCUPATIONAL TITLES:

7183-110	TOBACCO CURER
7183-114	FARM WORKER, GRAIN
7183-118	FARM WORKER, MUSHROOM
7183-122	FARM WORKER, VEGETABLE
7183-126	FARM WORKER, TOBACCO

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	3	4	M-H347	O-B37	3-2	6-5	91	Y1
				3		4			4	5	3						

7185 - ORCHARD, VINEYARD & RELATED TREE & SHRUB CROP WORKERS

WORK PERFORMED: This chapter includes occupations concerned with growing tree, vine, shrub and ground fruit crops, such as apples, grapes, raspberries and strawberries. Worker functions include: driving and operating farm machinery and equipment to cultivate soil, spread fertilizers, spray pesticides and irrigate fruit crops; comparing condition and growth of trees, plants and fruit for normal development; and handling fruit produce during picking, sorting, grading and packaging processes. Work activities include: planting and pruning fruit trees, vines, cuttings and plants; erecting wooden supports and stringing wires for vines; protecting trees and shrubs against damage from weather and pests; and servicing farm equipment.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the techniques of caring for fruit trees and growing and harvesting fruit crops, and the ability to follow detailed work instructions; form perception to examine trees, vines and shrubs for symptoms of disease or the presence of insect pests, and to grade or sort fruit; eye-hand-finger co-ordination and manual dexterity when using garden tools and hand chemical sprayers, when thinning fruit and pruning trees or plants, and when harvesting, sorting and packing fruit or berries; finger dexterity to harvest, sort and pack fruit and berries without bruising them; eye-hand-foot co-ordination to steer and simultaneously actuate levers, pedals, and hydraulic controls of tractors; capacity to perform work involving frequent lifting of objects weighing up to twenty pounds; agility to climb ladders and balance on platforms or on ladder rungs while picking fruit or pruning fruit trees; capacity to work in stooping, kneeling and crouching positions when transplanting and caring for shrubs or vines and when picking berries; visual acuity and depth perception to selectively prune branches or shoots; colour vision to detect diseased leaves and to determine ripeness of maturing fruit; capacity to work on occasion in noisy environment, and to operate farm machinery where vibration and rough rides may cause discomfort and fatigue; capacity to work in situations where risk of injury is present, for example, falls from ladders or contact with moving machinery; capacity to work with toxic chemicals, sprays, dusts and fumigating mists that may require special precautions in handling.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to twelve years of general education; and from six months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: On small farms that employ from one to three full-time workers, workers may be given lead-hand status during the fruit harvesting season. Experienced fruit-farm workers, who have supervisory potential and are employed by large farm, may advance to 7180-126 FOREMAN: ORCHARD, VINEYARD AND RELATED TREE AND SHRUB-CROP WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other farming and horticultural occupations which require similar skills, such as knowledge of tree pruning and farm machinery operation. See Chapters 7195, NURSERY AND RELATED WORKERS and 7197, FARM MACHINERY OPERATORS AND CUSTOM OPERATORS. Typical occupations are 7195-126 GROUNDSMAN and 7197-118 CROP SPRAYER, MACHINE. Other workers may transfer to 8226-126 GRADER, FRUIT-AND-VEGETABLES.

OCCUPATIONAL TITLES:

7185-110 FARM WORKER, FRUIT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	3	3	5	3	4	3	3	3	M2347	B567	2	5	19	1Y

7187A-A HORSEMEN

224, 624

WORK PERFORMED: This chapter includes occupations concerned with training, exercising and attending to the needs of racehorses and draft horses at a racetrack or on a farm. Worker functions include: training and breaking racehorses and draft horses; analyzing abilities and peculiarities of individual horses, and developing appropriate training programs; manipulating reins, and buckles and straps of bridles, saddles and harnesses during training exercising activities; and handling feed, and grooming and stable equipment. Work activities include: supervising workers who feed and care for horses; accustoming horses to riding equipment or harnesses through progressive stages; riding and driving racehorses to exercise, condition and train them for racing; feeding, watering and grooming horses, cleaning stables; and riding lead ponies to escort horses to starting gate.

APTITUDES AND CAPACITIES: learning ability to acquire a knowledge of the behavior, care and training of horses, to understand the rules and regulations governing horse racing, to apply this knowledge to train horses and be able to discuss training methods, problems and instructions with grooms, jockeys and horse owners; eye-hand-finger co-ordination for such typical activities as placing bit in horse's mouth, and bridling animals; manual dexterity to saddle horses, or to harness and hitch horses to sulkies; eye-hand-foot co-ordination to catch, mount, ride or drive horses during training period; strength to perform light to medium work and frequent lifting of objects weighing up to twenty pounds; depth perception and field of vision to ride or drive horses; adaptability to work situations in which there is risk of injury by being trampled on or kicked by unruly horses or by falls from horses or sulkies.

TRAINING AND ENTRY REQUIREMENTS: eight to eleven years of general education; one to four years of on-the-job training; completion of licensing or certification requirements.

ADVANCEMENT POSSIBILITIES: Experienced workers who build a reputation may advance to similar positions in larger establishments offering increased remuneration. Those who have knowledge of business practices may become self-employed as 7113-114 BREEDER, HORSE.

TRANSFER POSSIBILITIES: Because of the specialized nature of the work involved, transfer are usually limited to businesses such as riding schools and stables, circuses, race tracks or horse breeding establishments.

OCCUPATIONAL TITLES:

7187-110 TRAINER, RACEHORSE

7187-114 HORSE BREAKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	5	4	4	3	3	5	L-M4	B6	4-3	7-6	62	946
		4								4							968

7187A-B HORSEMEN 674, 677

WORK PERFORMED: This chapter includes occupations concerned with training, exercising and attending to the needs of racehorses and draft horses at a racetrack or on a farm. Worker functions include: training and breaking racehorses and draft horses; analyzing abilities and peculiarities of individual horses, and developing appropriate training programs; manipulating reins, and buckles and straps of bridles, saddles and harnesses during training exercising activities; and handling feed, and grooming and stable equipment. Work activities include: supervising workers who feed and care for horses; accustoming horses to riding equipment or harnesses through progressive stages; riding and driving racehorses to exercise, condition and train them for racing; feeding, watering and grooming horses; cleaning stables; and riding lead ponies to escort horses to starting gate.

APTITUDES AND CAPACITIES: learning ability to understand and carry out instructions relating to the exercising, feeding and watering of horses; eye-hand-finger co-ordination and manual dexterity to harness and hitch horses to sulkies, saddle horses, administer medications, and use various implements to clean barns and groom animals; eye-hand-foot co-ordination and agility to mount and dismount from horses and to maintain balance when riding; strength to perform light to heavy work, involving handling horses and frequent lifting of objects weighing up to fifty pounds; ability to stoop, kneel and crouch to examine horses' shoes, hooves and legs and apply medications; adapability to work situations in which there is risk of injury by falls from horses, or from kicking.

TRAINING AND ENTRY REQUIREMENTS: seven or eight years of general education; one to six months of on-the-job training; for 7187-134 EXERCISER, RACEHORSE and 7187-138 LEAD-PONY BOY, completion of licensing or certification requirements.

ADVANCEMENT POSSIBILITIES: Occupations in this cluster are considered entry jobs, and advancement is normally to more highly skilled occupations in Cluster A.

TRANSFER POSSIBILITIES: Because of the specialized nature of the work involved, transfers are usually limited to businesses such as riding schools, and stables, circuses, race tracks or horse breeding establishments.

OCCUPATIONAL TITLES:

7187-134	EXERCISER, RACEHORSE	7187-146	GROOM
7187-138	LEAD-PONY BOY		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	4	5	L-H24	B6	2	4-2	36	3
			5				3										

7187B-A LIVESTOCK WORKERS

WORK PERFORMED: This chapter includes occupations concerned with attending to the needs of livestock such as cattle, sheep, hogs and fur-bearing animals. Worker functions include: driving and operating farm machinery to plant, cultivate and harvest crops; maniuplating shears, knives, clamps, syringes or tongs when treating and caring for animals; handling tools, implements, bales and sacks; and comparing appearance of animals to assess growth and condition. Work activities include: feeding and watering livestock; applying medications to sick and injured animals; caring for mothers and their young; patrolling cattle or sheep ranch on horseback; repairing farm equipment; killing and skinning fur-bearing animals; and marking animals for identification purposes.

APTITUDES AND CAPACITIES: learning ability to understand and apply the procedures and techniques applicable to growing crops, and feeding and caring for cattle, sheep, hogs or fur-bearing animals; spatial perception to operate farm machinery to plant, cultivate and harvest crops; eye-hand co-ordination to operate stationary farm equipment, or to use skinning and castrating knives or carpentry tools; manual dexterity for activities such as repairing buildings and immunizing animals; eye-hand-foot co-ordination when patrolling range on horseback, and to actuate levers, pedals, hydraulic controls and steering mechanisms of farm machinery and trucks; finger dexterity to skin animals and to remove flesh from pelt by knife is required by 7187-130 FUR-FARM WORKERS; capacity to perform medium to heavy work, requiring frequent lifting of objects weighing up to fifty pounds, and capacity for periodically working outdoors in snow and extremely cold weather; capacity to work in stooping and crouching positions when treating animals or cleaning pens; visual acuity to assess crop growth and condition of animals, and depth perception and field of vision to drive farm machinery; colour vision to assess quality of fur pelts is required by 7187-130 FUR-FARM WORKER.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; three months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement is limited for Livestock Workers in small establishments. Those employed in large establishments, who possess supervisory abilities, may advance to 7180-118 FOREMAN, LIVESTOCK WORKERS. See also Chapter 990 FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Livestock Workers may transfer to other occupations requiring similar skills, for example, 7191-110 FARM WORKER, DAIRY and 7183-114 FARM WORKER, GRAIN.

OCCUPATIONAL TITLES:

7187-122 FARM WORKER, HOGS	7187-130 FUR-FARM WORKER
7187-126 RANCH WORKER	

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	3	4	4	3	4	3	3	4	M-H47	B	3	5-4	91	1Y
				4	3			3		4	3						

7187B-B LIVESTOCK WORKERS

587, 684

WORK PERFORMED: This chapter includes occupations concerned with attending to the needs of livestock such as cattle, sheep, hogs and fur-bearing animals. Worker functions include: driving and operating farm machinery to plant, cultivate and harvest crops; manipulating shears, knives, clamps, syringes or tongs when treating or caring for animals; handling tools, implements, bales and sacks; and comparing appearance of animals to assess growth and condition. Work activities include: feeding and watering livestock; applying medications to sick and injured animals; caring for mothers and their young; patrolling cattle or sheep ranch on horseback; repairing farm equipment; killing and skinning fur-bearing animals; and marking animals for identification purposes.

APTITUDES AND CAPACITIES: learning ability to understand and follow routine job instructions; eye-hand-finger co-ordination and manual dexterity to shear sheep, and tag or mark livestock for identification; strength to perform medium work, involving the lifting of objects weighing up to fifty pounds maximum; adaptability to work situations in which there is possibility of personal injury from excited animals; capacity to work while exposed to unpleasant conditions such as stockyard odours, mud and manure. Additionally for 7187-136 SHEARER, SHEEP; form perception to avoid cutting or nicking skin when shearing sheep; capacity to work in stooping and kneeling positions.

TRAINING AND ENTRY REQUIREMENTS: six to eight years of general education; one week to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement is limited for Livestock Workers in small establishments. Those employed in large establishments, who possess supervisory abilities, may advance to 7180-118 FOREMAN, LIVESTOCK WORKERS. See also Chapter 990 FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Livestock Workers may transfer to other occupations requiring similar skills, for example, 7191-110 FARM WORKER, DAIRY and 7183-114 FARM WORKER, GRAIN.

OCCUPATIONAL TITLES:

7187-136 SHEARER, SHEEP	7187-142 YARDMAN, LIVESTOCK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	4	5	M34	B467	2	3-2	31	32
			5			5	3										

7191-A DAIRY WORKERS, FARM

WORK PERFORMED: This chapter includes occupations concerned with attending to the needs of cattle on a dairy farm and planting, cultivating and harvesting crops required to feed animals. Worker functions include: driving and operating tractors and other agricultural equipment; tending milking machines; and handling farm tools, supplies and materials. Work activities include: feeding cattle; providing medications to sick and injured animals; spraying cattle to control insect pests; cleaning stables; repairing buildings and fences; mixing and spraying disinfectant and herbicide solutions; milking cows; and washing and sterilizing milking machines and milk containers.

APTITUDES AND CAPACITIES: learning ability to understand and apply dairy farming procedures and techniques to achieve maximum milk production; spatial perception to operate motorized-farm equipment to plant, cultivate and harvest crops; eye-hand co-ordination and manual and finger dexterity to use brushes, forks and shovels, and to milk cows by hand; eye-hand-foot co-ordination to steer and actuate levers, pedals and hydraulic controls of motorized-farm equipment; capacity for heavy work involving frequent lifting of objects weighing up to fifty pounds; agility to climb ladders to enter silos and lofts; capacity to work in stooping, kneeling and crouching positions to service machinery, and to examine cattle and administer medications; near visual acuity to make machine adjustments, far visual acuity to ensure adequate coverage when spraying crops, and depth perception to judge distances when driving farm machinery; colour vision to determine ripeness of crops; adaptability to working where risk of injury is present from causes such as falls from machines or ladders, or by contact with moving machine gears and chains; adaptability to working in dusty locations for example, when threshing grain, or where mists from toxic herbicide sprays may cause discomfort.

TRAINING AND ENTRY REQUIREMENTS: ten to eleven years of general education; a farm upbringing, or from six months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: On small dairy farms, advancement is usually limited to lead hand status. Experienced Dairy-Farm Workers who are employed by larger establishments and have supervisory potential, may advance to 7180-110 FOREMAN, DAIRY FARM-WORKERS. See also Chapter 990 FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Dairy-Farm Workers experienced with machinery operation may transfer to related occupations, such as 7181-110 FARM WORKER, GENERAL; 7187-126 RANCH WORKER; and 7197-114 FARM-MACHINERY OPERATOR.

OCCUPATIONAL TITLE:

7191-110 FARM WORKER, DAIRY

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	3	4	4	3	4	3	3	4	H2347	B67	3	5	19	1Y

7193 - POULTRY WORKERS, FARM

WORK PERFORMED: This chapter includes occupations concerned with attending to the needs of poultry and pheasants raised for production of eggs or meat, or for stock. Worker functions include: manipulating shears and clippers to trim wings and toes; and comparing appearance of poultry to assess health, growth and condition. Work activities include: feeding and providing water for fowl; adding vaccines to drinking water; cleaning and disinfecting brooders and poultry houses; placing eggs into incubators; transferring chicks from hatchery to brooders or placing baby chicks into shipping cartons; packaging eggs; killing, plucking and eviscerating fowl; loading poultry produce onto motor vehicles; and transporting mature pheasants to wooded areas and releasing them.

APTITUDES AND CAPACITIES: Poultry-Farm Workers require: learning ability to understand and apply the procedures and techniques of poultry farming; form perception for trimming wings and beaks, or segregating poultry by size; eye-hand-finger co-ordination and manual dexterity for such activities as killing fowl, packaging day-old chicks, debeaking chicks, and spraying poultry houses; finger dexterity for activities such as plucking chickens and placing eggs in incubators; sufficient strength to perform medium work, requiring the lifting of objects weighing up to fifty pounds; physical capacity to work in stooping, crouching and kneeling positions to clean and disinfect brooders, and clean poultry houses; near visual acuity to kill fowl and to debeak chicks; capacity to use disinfectants and insecticide sprays, some of which are toxic and require special precautions in their use.

TRAINING AND ENTRY REQUIREMENTS: Poultry-Farm Workers normally require: eight to ten years of general education; farm upbringing or from one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: On small poultry farms, advancement is usually limited to lead hand status. However, experienced workers who are employed by large establishments, and who possess supervisory ability, may advance to 7180-130 FOREMAN, POULTRY-FARM WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialized nature of the work, transfer possibilities for Poultry-Farm Workers are limited, however, some workers with additional training may transfer to occupations such as 7181-110 FARM WORKER, GENERAL or 7187-130 FUR-FARM WORKER.

OCCUPATIONAL TITLES:

7193-110	FARM WORKER, POULTRY	7193-114	FARM WORKER, PHEASANT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	3	3 4	3	4	4	M347	B7	3-2	4-3	19	1Y

7195-A NURSERY AND RELATED WORKERS

WORK PERFORMED: This chapter includes occupations concerned with growing trees, shrubs and ornamental plants, and providing landscaping, groundskeeping and gardening services. Worker functions include: driving and operating tractors, lawnmowers and other machinery; handling gardening and pruning tools, sprayers, shrubs and sod; examining trees for shape or condition and co-ordinating treatment, pruning or felling activities; supervising workers; and compiling information on park operations. Work activities include: removing dead and diseased trees and damaged limbs; spraying to control insects and plant disease; pruning trees, shrubs and hedges; preparing soil, and planting, cultivating and watering grass, trees, shrubs and flowers; mowing grass and tidying grounds; repairing park benches, fences and buildings; marking lines on sports fields; and gathering evergreen boughs and wild decorative plants for use in floral displays and decorations.

APTITUDES AND CAPACITIES: learning ability to understand and apply tree-surgery practices and techniques and reasoning ability to determine appropriate treatment methods; spatial perception to shape trees to desired contour, and to avoid overhead wires and other objects when raising ladders or hydraulic platforms; form perception to examine trees and shrubs for disease or defects; eye-hand co-ordination and manual dexterity to skilfully use tools and equipment such as chain saws, pruning tools and spray equipment; eye-hand-foot co-ordination to actuate levers, hydraulic controls and pedals of hydraulically-operated platforms; capacity to climb ladders, and to maintain balance when standing on ladder rungs, hydraulic platforms or tree branches; capacity for reaching to prune trees while handling pruning tools and hand or chain saws; near visual acuity for examining tree bark and foilage to detect disease and presence of insects; capacity to work while exposed to possible injuries from falls off ladders or trees, or from using chain saws.

TRAINING AND ENTRY REQUIREMENTS: eleven to twelve years of general education; one to two years of on-the-job training; or one year's experience in arboriculture or a related field, and completion of a course in tree maintenance and protection; completion of licensing requirements, where applicable.

ADVANCEMENT POSSIBILITIES: There are no clearly defined advancement patterns for Tree Surgeons, however, those who acquire knowledge of business practices may become self-employed.

TRANSFER POSSIBILITIES: Transfer possibilities for Tree Surgeons, because of the high degree of specialization, are limited.

OCCUPATIONAL TITLES:

7195-110 TREE SURGEON

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	4	3	3	4	L247	06	4	6	190	4901

7195-B NURSERY AND RELATED WORKERS

WORK PERFORMED: This chapter includes occupations concerned with growing trees; shrubs and ornamental plants, and providing landscaping, groundskeeping and gardening services. Worker functions include: driving and operating tractors, lawnmowers and other machinery; handling gardening and pruning tools, sprayers, shrubs and sod; examining trees for shape or condition and co-ordinating treatment, pruning or felling activities; supervising workers; and compiling information on park operations. Worker activities include: removing dead and diseased trees and damaged limbs; spraying to control insects and plant disease; pruning trees, shrubs and hedges; preparing soil, and planting, cultivating and watering grass, trees, shrubs and flowers; mowing grass and tidying grounds; repairing park benches, fences and buildings; marking lines on sports fields; and gathering evergreen boughs and wild decorative plants for use in floral displays and decorations.

APTITUDES AND CAPACITIES: learning ability to understand, interpret and apply directives concerning use of park facilities; verbal ability to adequately answer visitors' queries concerning park facilities, camp sites and camping rates; visual acuity, depth perception and field of vision to detect fires and rule infractions when patrolling park grounds.

TRAINING AND ENTRY REQUIREMENTS: nine or ten years of general education; six months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Park Caretakers with supervisory potential and administrative ability may advance to 1119-238 PARK SUPERINTENDENT, or to appropriate occupations in Unit Group 7180 FOREMEN: OTHER FARMING, HORTICULTURAL AND ANIMAL-HUSBANDRY OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Park Caretakers with additional training may transfer to 1119-258 PARK RANGER.

OCCUPATIONAL TITLE:
7195-114 PARK CARETAKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	3	4	4	4	4	5	5	L57	B	3	5	12	51

7195-C NURSERY AND RELATED WORKERS

683, 684, 687

WORK PERFORMED: This chapter includes occupations concerned with growing trees, shrubs and ornamental plants, and providing landscaping, groundskeeping and gardening services. Worker functions include: driving and operating tractors, lawnmowers and other machinery; handling gardening and pruning tools, sprayers, shubs and sod; examining trees for shape or condition and co-ordinating treatment, pruning or felling activities; supervising workers; and compiling information on park operations. Work activities include: removing dead and diseased trees and damaged limbs; spraying to control insects and plant disease; pruning trees, shrubs and hedges; preparing soil, and planting, cultivating and watering grass, trees, shrubs and flowers; mowing grass and tidying grounds; repairing park benches, fences and buildings; marking lines on sports fields; and gathering evergreen boughs and wild decorative plants for use in floral displays and decorations.

APTITUDES AND CAPACITIES: learning ability to understand and apply practices and techniques associated with the growing of trees, shubs and plants, or with the provision of landscaping, groundskeeping and gardening services; spatial perception to judge distances and relative positions when driving motorized equipment, or to visualize an aesthetic layout of grounds; form perception to prune trees, trim hedges or edge lawns; eye-hand-finger co-ordination and manual dexterity to use carpentry tools, garden implements and spray equipment; eye-hand-foot co-ordination to actuate pedals, levers, and hydraulic controls of equipment such as tractors, backhoes and motor vehicles; capacity to perform medium to heavy work involving lifting objects weighing up to one hundred pounds; capacity to work in stooping, kneeling and crouching positions to plant flowers, weed flower beds and care for shrubs; capacity for reaching and handling to spray trees and shrubs, top soil and flagstones; adaptability to working where there is risk of injury from falls, exposure to toxic strays and contact with moving parts of machines.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; one week to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for 7195-134 PARK WORKER may be to 7195-114 PARK CARETAKER; 7195-138 TREE SURGEON HELPER may advance to 7195-110 TREE SURGEON. Workers in this cluster with supervisory ability may advance to appropirate occupations in Unit Group 7180 FOREMEN: OTHER FARMING, HORTICULTURAL AND ANIMAL-HUSBANDRY OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer of workers is normally to other occupations requiring similar skills within the cluster.

OCCUPATIONAL TITLES:

7195-118	CEMETERY WORKER
7195-122	NURSERY WORKER
7195-126	GROUNDSMAN
7195-130	GROUNDSMAN, SPORTS FIELD
7195-134	PARK WORKER
7195-138	TREE SURGEON HELPER
7195-142	EVERGREENS PICKER
7195-146	LANDSCAPE WORKER
7195-150	SPRAYER, HAND

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	3	4	M-H34	06	3-2	3-2	139	2Y
			5	3						4	5					13	23

7197 - FARM MACHINERY OPERATORS AND CUSTOM OPERATORS 132, 682, 683

WORK PERFORMED: This chapter includes occupations concerned with operating farm machinery to plant, cultivate and harvest crops. Worker functions include: driving and operating self-propelled or tractor-drawn machines such as seeders, combines, vegetable harvester, fertilizer spreaders and crop sprayers; operating and controlling stationary harvesting equipment; and comparing spraying and dusting operations to ensure effective application of materials. Work activities include: providing custom operating services under contract; directing activities of machine operators; preparing equipment for operation by setting and adjusting blades, cutter heads, nozzles and other machine components; filling hoppers with seed, fertilizer or chemical dusts; and moving controls to start, stop, regulate or steer equipment.

APTITUDES AND CAPACITIES: Farm machine operators require: learning ability to acquire a knowledge of the operation and maintenance of farm machinery and equipment; spatial perception to judge distances and relative positions when driving farm machinery, or to visualize relationships of machine parts to facilitate servicing and repair; eye-hand co-ordination and manual dexterity for activities such as hitching machinery to tractors, and cleaning, servicing and repairing equipment; finger dexterity to effect repairs, such as installation of engine breaker points or replacement of chain links; eye-hand-foot co-ordination to drive farm machinery by actuating machine levers, pedals, hydraulic controls and steering mechanisms; strength to perform light to medium work involving lifting objects weighing up to fifty pounds; agility to climb steps or ladders attached to machines, and maintain balance while making machine adjustments from step or ladder-rung positions; visual acuity, depth perception and field of vision to make machine repairs and to operate motorized equipment; adaptability to working where risk of injury is present from causes such as falls, overturned vehicles, or contact with cutting mechanisms, drive chains or gears; capacity to work while exposed to engine fumes, dusts or spray mists that can cause discomfort, and may require use or protective equipment.

TRAINING AND ENTRY REQUIREMENTS: Farm machine operators normally require: ten to twelve years of general education; farm upbringing, or from three months to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Farm machine operators with supervisory ability may advance to appropriate occupations in Unit Group 7180, FOREMEN: OTHER FARMING, HORTICULTURAL AND ANIMAL-HUSBANDRY OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: Transfer may be to other agricultural occupations where ability to operate farm machinery is a significant requirement, such as appropriate occupations in Chapters 7181, GENERAL WORKERS, FARM; 7183, FIELD CROP AND VEGETABLE GROWING WORKERS; 7187B, LIVESTOCK WORKERS; and 7191, DAIRY WORKERS, FARM. Experienced farm machine operators may also transfer to occupations requiring similar skills in mining, construction, transport and material-handling fields, such as 7717-162 PEAT MOSS-GATHERING-MACHINE, OPERATOR; 8711-178 POST-HOLE DRILLER, 9179-158 MUSKEY-TRACTOR OPERATOR and 9315-130 TRACTOR OPERATOR.

OCCUPATIONAL TITLES:

7197-110 HOP-PICKING-MACHINE OPERATOR
7197-114 FARM-MACHINERY OPERATOR
7197-118 CROP SPRAYER, MACHINE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	4	4	3	4	3	3 4	4	L-M247	I-067	4-3	6-4	91	Y9

7198 - OCCUPATIONS IN LABOURING & OTHER ELEMENTAL WORK: FARMING, HORTICULTURAL & ANIMAL HUSBANDRY

666, 687

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in farming, horticulture and animal husbandry. Worker functions include: attending to the needs of animals and poultry; and handling farm products and agricultural tools. Work activities include: irrigating field crops; thinning and hoeing row crops; feeding livestock and fur bearing animals; cleaning stables and pens; packaging eggs; cleaning and disinfecting poultry houses; collecting maple sap; picking fruit; preparing vegetable produce for market; and performing other routine duties.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand simple instructions and to perform a variety of uncomplicated tasks, usually of a routine nature; form perception to check the condition of livestock, thin and weed vegetable crops, and pick properly matured fruit; eye-hand co-ordination and finger dexterity to handle eggs and baby chicks, transplant seedlings, thin row crops, pick berries or prepare produce for market; manual dexterity to bag grain, pull vegetables, connect irrigation piping, and pack or crate farm products; colour discrimination is especially important for workers who must distinguish colours and shades of ripe and unripe fruit; strength to frequently lift and carry agricultural tools, feed for livestock, bags of grain, or containers of farm produce weighing from fifty to one hundred pounds; agility to climb ladders and maintain balance while picking tree crops; capacity for stooping, crouching and kneeling while caring for livestock, transplanting and weeding row crops, harvesting vegetables or picking berries; capacity to work outside under seasonal weather conditions.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: six to eight years of general education; a short demonstration up to one month's experience to acquire a job proficiency.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter who have potential may advance to many of the specialized occupations described in Minor Group 718/719 OTHER FARMING, HORTICULTURAL AND ANIMAL-HUSBANDRY OCCUPATIONS.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations in the chapter with short periods of orientation or training.

OCCUPATIONAL TITLES:

7198-110	LABOURER, EGG-GRADING STATION	7198-130	LABOURER, HOP-FARM
7198-114	LABOURER, FRUIT-FARM	7198-134	LABOURER, IRRIGATION
7198-118	LABOURER, DAIRY-FARM	7198-138	LABOURER, LIVESTOCK
7198-122	LABOURER, FIELD AND VEGETABLE CROP	7198-142	LABOURER, POULTRY-FARM
		7198-146	LABOURER, SUGAR-BUSH
7198-126	LABOURER, GENERAL-FARM	7198-150	WORM PICKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	3	4	3	4	5	M-H234	O-B	1	2	13	23
		5	4				4	3	4		4						
											3						

7199A - ANIMAL CARE OCCUPATIONS, N.E.C. 374, 674

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with attending to the needs of animals in a pound, laboratory, kennel, zoo or pet store, and fish or other marine life in an aquarium. Worker functions involved: observing animals and caring for their necessities; manipulating brushes, scrapers, water and steam sprays, vacuum cleaners and siphons to clean cages or aquariums, and brushes, scissors and clippers to groom animals; and handling animals during examination, grooming or treatment. Work activities include: feeding and watering animals; disinfecting cages or aquariums; examining animals for indications of illness, injury or insect pests and treating or reporting conditions; spraying or spreading insecticides; and bathing and grooming animals.

APTITUDES AND CAPACITIES: Animal care workers require: learning ability to understand and apply the techniques involved in caring for animals and fish or other marine life, and in maintaining their living areas; form perception to examine animals or fish for indications of disease, injury or infestation, and to remove algae from aquariums, and read temperature or humidity indicators; eye-hand-finger co-ordination and manual dexterity to handle animals during washing, grooming, examination and treatment, and to feed animals or fish.

TRAINING AND ENTRY REQUIREMENTS: Animal care workers normally require: eight to twelve years of general education; thirty days to two years of on-the-job training, depending on the occupation.

ADVANCEMENT POSSIBILITIES: Advancment for experienced workers in this chapter may be to higher skilled occupations within the chapter. With additional training, some may advance to 1176-166 INSPECTOR, HUMANE SOCIETY. Others who acquire knowledge of business practices may become self-employed as owner of a pet store.

TRANSFER POSSIBILITIES: Animal care workers in this chapter may transfer to other occupations within the chapter that require similar skills. With additional training, experienced workers may also transfer to 3159-186 VETERINARY ATTENDANT.

OCCUPATIONAL TITLES:

7199-142	ANIMAL ATTENDANT, POUND
7199-146	AQUARIST
7199-150	ANIMAL ATTENDANT, LABORATORY
7199-154	KENNELMAN
7199-158	ANIMAL ATTENDANT, ZOO
7199-162	ATTENDANT, PET SHOP

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	4	4	4	4	4	5	4	L47	B6	3-2	6-3	31	0
	4		5	3	3	5				4	5						3

7311 - CAPTAINS AND OTHER OFFICERS, FISHING VESSELS 133, 134

WORK PERFORMED: This chapter includes occupations concerned with commanding and operating fishing vessels that search for and catch fish or other marine life. Worker functions include: determining fishing areas and co-ordinating and supervising the activities of crewmen; controlling the course and speed of the vessel; computing positions; and operating navigation aids, electronic equipment and winches. Work activities include: plotting courses; assigning watches to crew; directing crew engaged in catching, cleaning, preserving, stowing and refrigerating aquatic life; and ensuring that the vessel is properly equipped, provisioned and maintained.

APTITUDES AND CAPACITIES: Captains and Other Officers of fishing vessels require: learning ability to acquire a knowledge of seamanship, fishing grounds, capabilities of vessel and crew, use of electronic aids such as navigational radar and sonic fish locators, and to apply these skills to co-ordinate activities of crewmen aboard a fishing vessel; verbal ability to effectively communicate by radio and to give directions to crew; numerical ability to apply mathematics to solve navigational problems, compute crew's salaries and conduct ship's business; spatial perception to visualize the position and movement of own vessel in relation to others and to circumvent navigational hazards, especially during foggy or bad weather conditions; form perception to distinguish details in navigational aid displays and charts and to determine condition when examining vessels' equipment and fishing gear; eye-hand-finger co-ordination to operate navigational instruments and to plot courses on charts; finger dexterity to rapidly manipulate knobs and controls to take readings on electronic and mechanical aids-to-navigation to determine position of ship; physical capacity and agility to stand for extended periods and maintain balance on a rolling and pitching deck while steering the vessel, plotting courses or supervising deck and wheelhouse activities, and to lift, handle and examine fishing gear weighing up to seventy-five pounds; excellent hearing to detect navigational warnings such as bell buoys and fog horns, and to hear broadcast weather and fishing reports; visual acuity both near and far, depth perception and colour recognition; capacity to work inside and outside while exposed to wet conditions during rough or rainy weather; adaptability to work involving exposure to continuous noises from engine, sea and wind, and danger from mechanical hazards such as ropes, cables and winches.

TRAINING AND ENTRY REQUIREMENTS: Captains of fishing vessels one hundred tons gross and over generally require: eleven to twelve years of general education; twelve months verified experience at sea and be at least twenty-one years of age; and pass a Ministry of Transport's examination to receive a Fishing Master's Certificate. Mates of fishing vessels one hundred tons gross and over generally require: eleven to twelve years of general education and be at least eighteen years of age; six months verified experience at sea; pass a Ministry of Transport's examination to receive a Fishing Mate's Certificate. Captains and mates of fishing vessels under one hundred tons gross weight require: no minimum level of general education is specified; several years of experience under guidance of an experienced fisherman.

ADVANCEMENT POSSIBILITIES: Captains may advance to command fishing vessels of greater tonnage. Some captains own and operate their own boats. Some boat owners may expand their operations and buy more boats, or start into other phases of the industry such as owning and operating a processing plant or a fish-retail outlet on their own pier. Mates and Boatswains may advance within the requirements set forth in the Training and Entry Requirements section of this chapter.

TRANSFER POSSIBILITIES: Transfer opportunities may exist to occupations on other types of vessels such as ferry-boats, tugboats, and coastal freighters if the necessary qualification requirements are met, see Chapter 9151, Deck Officers.

OCCUPATIONAL TITLES:

7311-110 CAPTAIN, FISHING VESSEL
7311-114 MATE, FISHING VESSEL
7311-118 BOATSWAIN, FISHING VESSEL

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	3	4	3	4	3	3	4	M-H24567	B4567	4-3	7-6	95	40Y58
			4	3		3	4	3									40Y

7313-C FISHERMEN: NET, TRAP AND LINE

683, 684, 686

WORK PERFORMED: This chapter includes occupations concerned with catching fish and gathering shellfish. Worker functions include: determining time, place and patterns for setting fish traps and co-ordinating and supervising activities of workers engaged in setting and emptying trap nets; operating winches, shellfish harvesting equipment and dragging apparatus; maniuplating nets, hooks, lines, spears and other fishing gear; and comparing fish and sorting them by type and size. Work activities include: preparing, lowering, and raising nets and fishing lines; setting buoys and anchors; cleaning and stowing fish; inspecting and repairing fishing equipment; and assisting other crewmen in operation and maintenance of vessel.

APTITUDES AND CAPACITIES: learning ability to understand and apply the techniques for catching fish or shellfish; form perception to observe defects in nets and other fishing equipment; eye-hand co-ordination and manual dexterity to set or haul and repair nets, traps, pots or lines, to take fish or shellfish from these devices, and to clean, sort, stow and pack catch; physical capability to perform heavy to very heavy work with frequent lifting of gear weighing up to fifty pounds or more; physical capacity to keep balance on rolling boat deck and to work in a stooped position when reaching and hauling in catch; capacity to work outside under conditions where contact with wet gear, fish and inclement weather is frequent.

TRAINING AND ENTRY REQUIREMENTS: no specific educational requirements; upbringing in fishing family, or three months of on-the-job training under the guidance of an experienced fisherman.

ADVANCEMENT POSSIBILITIES: Experienced fishermen may advance to boatswain, or become mate or captain of fishing vessels, provided they acquire the necessary qualifications and skills. See Chapter 7311 CAPTAINS AND OTHER OFFICERS, FISHING VESSELS.

TRANSFER POSSIBILITIES: Transfer possibilities for fishermen are limited. Some opportunities may exist for transfer, because of their skills in seamanship, to employment on other types of vessels such as ferryboats, tugboats and coastal freighters, see Chapter 9155 DECK CREW, SHIP.

OCCUPATIONAL TITLES:

7313-118	FISHERMAN, PURSE SEINE
8313-122	DECKHAND, FISHING VESSEL
7313-126	FISHERMAN, GILL NET
7313-130	FISHERMAN, HARPOON
7313-134	FISHERMAN, TRAP
7313-138	FISHERMAN, TRAWL NET
7313-142	FISHERMAN, HOOP NET
7313-146	FISHERMAN, LINE
7313-150	FISHERMAN, POT
7313-154	SHELLFISH-BED MAN
7313-158	SHELLFISH-HARVESTER DECKHAND

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	4	4	H-VH234	046	2	4-3	913	23
				3	3		4		4		5						

7315 - HUNTING, TRAPPING AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with hunting and trapping wild animals for food, pelts or sale, or to exterminate unwanted predators. Worker functions include: comparing animal signs to identify their source and arranging traps, snares and baits according to animal type; and manipulating knives and hand tools when skinning animals and preparing pelts for market. Work activities include: patrolling traplines and removing catch; resetting and relocating traps; skinning animals; and stretching, skiving, curing and sorting pelts.
APTITUDES AND CAPACITIES: Trappers require: learning ability to acquire knowledge of the habits and tracks of wild animals and to understand and apply the techniques for trapping particular species; eye-hand-finger co-ordination to set traps, drive a dog sled or powered-snow vehicle, and handle firearms; finger dexterity to skin animals and prepare their pelts; manual dexterity to set traps and stretch pelts; capacity to lift heavy loads such as logs, supplies and pelts; acute hearing to detect sounds of wildlife; visual acuity both far and near to set traps, to discern wildlife at a distance, and to aim firearms.
TRAINING AND ENTRY REQUIREMENTS: Trappers normally require: primary school education, sufficient to communicate and make simple mathematical calculations during business transactions; one or more seasons of on-the-job training.
ADVANCEMENT POSSIBILITIES: Experienced Trappers may increase their earnings by acting as guides for fishing and hunting parties and some of these who have been able to build a reputation may, with some financial backing, become owner-operators of hunting and fishing lodges.
TRANSFER POSSIBILITIES: Trappers may act as guides for fishing and hunting parties; see 3719-114 HUNTING AND FISHING GUIDE.
OCCUPATIONAL TITLES:
7315-110 TRAPPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PC	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	5	4	4	3	4	4	H23467	0467	3	5	19	69Y

7511-A FORESTRY CONSERVATION OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with conserving forest areas and woodlots and protecting them from fire, disease and other hazards. Worker functions include: compiling forestry information and meteorological data about assigned region; and reporting fires, fire hazard conditions, accidents and other emergencies. Work activities include: patrolling forests; preparing maps showing amounts and condition of timber, new growth, topographical features and other forestry data; visiting camp-sites to insure that campers comply with fire and other regulations; rendering first aid to injured persons; and maintaining surveillance from lookout stations.

APTITUDES AND CAPACITIES: learning ability to understand forestry regulations and practices and to carry out inventories of timber tracts; numerical ability to make arithmetic calculations quickly and accurately; spatial perception for activities such as mapping topographical features of the forest and appraising timber stands; form perception to note details and detect signs of disease in trees; clerical perception to record data quickly and accurately, and to avoid errors in arithmetic computations; eye-hand-finger co-ordination to set-up and adjust meteorological instruments; eye-hand-foot co-ordination for activities such as driving vehicles, riding horses and walking over all types of terrain; strength to perform light to medium work frequently involving carrying radio and meteorological equipment weighing from ten to fifty pounds; agility to climb and balance when traversing rough terrain; near and far visual acuity and depth perception to read maps and recording instruments, and to observe forest fires and judge distances.

TRAINING AND ENTRY REQUIREMENTS: twelve years of general education; two years of vocational training in forestry; six months on-the-job training; and successful completion of a written provincial examination for certification. A provincial scaler's licence may be required by some provinces.

ADVANCEMENT POSSIBILITIES: Workers with supervisory ability may advance to 7510-110 FOREMAN, FORESTRY-CONSERVATION OCCUPATIONS. See also chapter 990, FOREMEN OCCUPATIONS for qualifications profiles.

TRANSFER POSSIBILITIES: Workers may transfer to occupations in Chapter 7516, LOG INSPECTING, GRADING, SCALING AND RELATED OCCUPATIONS, provided they acquire additional training.

OCCUPATIONAL TITLES:

7511-110 FOREST OFFICER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	3	3	4	4	3	4	M24	04	4	6	71	6901

WORK PERFORMED: This chapter includes occupations concerned with conserving forest areas and woodlots and protecting them from fire, disease and other hazards. Worker functions include: compiling forestry information and meteorological data about assigned region; and reporting fires, fire hazard conditions, accidents and other emergencies. Work activities include: patrolling forests; preparing maps showing amounts and condition of timber, new growth, topographical features and other forestry data; visiting camp-sites to insure that campers comply with fire and other regulations; rendering first aid to injured persons; and maintaining surveillance from lookout stations.

APTITUDES AND CAPACITIES: learning ability to understand the procedures involved in the observation and reporting of forest fires; spatial perception to relate areas under observation to topographical maps; clerical perception to accurately maintain records and log books; eye-hand-foot co-ordination when climbing and descending stairs or ladders of lookout towers; physical capacity to climb and balance on ladders and platforms; near visual acuity to read maps and record instrument readings; far visual acuity and depth perception to judge distances, and to discern distant fires.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; and a minimum of two months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Forestry conservation workers with supervisory ability may advance to 7510-110 FOREMAN, FORESTRY-CONSERVATION OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile. Fire Lookouts may also advance to 7511-110 FOREST OFFICER, porvided they acquire the necessary qualifications.

TRANSFER POSSIBILITIES: Workers may transfer to occupations in Chapter 7516 LOG INSPECTING, GRADING, SCALING AND RELATED OCCUPATIONS provided they acquire additional training.

OCCUPATIONAL TITLE:
7511-114 FIRE LOOKOUT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	3	4	4	4	3	4	L24567	I	3	4	91	602

WORK PERFORMED: This chapter includes occupations concerned with felling trees and cutting them into logs. Workers functions include: comparing characteristics of trees to obtain optimum utilization; manipulating chain saws and axes to fell trees, trim branches, and cut trunks into logs of standard length; and driving and operating machines that fell, de-limb and cut trees into pulpwood logs. Work activities include: moving levers to guide boom, grapples and shears that cut, lift and feed trees into processor; clearing underbrush from work areas; maintaining and sharpening saws; and marking log butts for production records.

APTITUDES AND CAPACITIES: learning ability to understand and apply correct and safe procedures for operating tree-processing machines that harvest trees for pulpwood; spatial perception to visualize amount of area required to manoeuver and operate tree-processing machine with minimum damage to remaining trees; form perception to determine correct position for grapple during shearing and cutting operations and to pile or load logs after harvesting; eye-hand co-ordination and manual dexterity to operate cutting and lifting controls of tree-processing machine; eye-hand-foot co-ordination to operate and drive tree-processing machine; capacity to work outside while exposed to loud noises from machinery and extremes in temperature; adaptability to working where there is a variety of physical hazards such as proximity to moving machinery and danger from falling trees; good vision to operate tree-processing machine.

TRAINING AND ENTRY REQUIREMENTS: ten years of general education; a four-month vocational course in the operation of heavy logging equipment and six months of on-the-job training; or one year of related logging experience and six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 7510-126 FOREMAN, TIMBER-CUTTING AND RELATED OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Some workers may transfer to other occupations in Chapter 7517 LOG HOISTING, SORTING, MOVING AND RELATED OCCUPATIONS, that require similar skills.

OCCUPATIONAL TITLE:

7513-110 TREE-PROCESSOR OPERATOR, PULPWOOD

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	4	3	3	5	L47	056	3	5	913	2Y8

7513-B TIMBER CUTTING AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with felling trees and cutting them into logs. Worker functions include: comparing characteristics of trees, trim branches, and cut trunks into logs of standard length; and driving and operating machines that fell, de-limb and cut trees into pulpwood logs. Work activities include: moving levers to guide boom, grapples and shears that cut, lift and feed trees into processor; cleaning underbrush from work areas; maintaining and sharpening saws; and marking log butts for production records.
APTITUDES AND CAPACITIES: learning ability to understand and apply correct and safe procedures to fell and cut felled trees into logs by chain saw or other hand tools; spatial perception to visualize the area and direction of fall required to avoid injury to other trees or personnel in area; eye-hand co-ordination and manual dexterity to undercut and then backcut the tree trunk with chain saw, and to withdraw the saw at the appropriate moment when the tree begins to fall; eye-hand-foot co-ordination to fell trees with a saw, quickly remove the saw from the cut, and move to a position safe from the falling tree; capacity to work outside while exposed to loud, intermittent chain saw noise, and temperature extremes; adaptability to working where there is a variety of physical hazards, such as close proximity to moving saw blades and danger form falling trees; strength for heavy work involving the use of hand saws and axes, and chain-saws weighing up to forty pounds; agility to work in awkward positions, such as kneeling or stooping while using chain saw or axe to cut trees or limbs and underbrush.
TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; a six week vocational course in basic logging; or four months of on-the-job training.
ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 7510-126 FOREMAN, TIMBER-CUTTING AND RELATED OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.
TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to other occupations in Chapter 7517 LOG HOISTING, SORTING, MOVING AND RELATED OCCUPATIONS that require similar skills.
OCCUPATIONAL TITLES:

7513-118 FALLER AND BUCKER	7513-122 LOGGER, ALL-ROUND

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	3	4	4	3	4	3	3	5	H34	056	2	5-3	913	2Y8
			5														

7516-A LOG INSPECTING, GRADING, SCALING AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with surveying timber stands to appraise yields of marketable lumber and to determine method of recovery, estimating marketable content of logs, and inspecting and grading logs for processing as lumber or pulpwood. Worker functions include: analysing data obtained from surveys of timbered areas; compiling reports indicating species, quality and size of trees; computing estimated yield of lumber of pulpwood; comparing logs to grade them according to size, species and condition; and manipulating equipment used to survey timber stands. Work activities include: measuring height and diameter of trees; boring wood samples; preparing maps showing topographic features and location and types of timber; and marking trees for cutting or processing.
APTITUDES AND CAPACITIES: learning ability to conduct surveys of forest areas in order to assess conditions for logging, land use and management planning, and to draft accurate topographical maps from survey notes; numerical ability to quickly and accurately compute amounts of marketable timber from measurements of trees and logs; spatial perception to observe topographical information for use in maps and reports of area cruised; clerical perception to record data and prepare reports; eye-hand co-ordination to draft maps, measure trees and use surveying instruments; strength to perform medium work, to frequently carry instruments weighing up to twenty pounds, and to maintain balance while walking or climbing over rugged terrain; far and near visual acuity and good colour vision to distinguish distant topographical features and to measure trees and ascertain their species.
TRAINING AND ENTRY REQUIREMENTS: twelve years of general education; two years of vocational training in forest technology; or four years of on-the-job training and experience in related occupations, perferably with a period as 7516-118 LOG SCALER.
ADVANCEMENT POSSIBILITIES: Workers who have supervisory ability may advance to appropriate occupations in Unit Group 7510 FOREMEN, FORESTRY AND LOGGING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.
TRANSFER POSSIBILITIES: Because of the specialization and the skills involved in the occupations, transfer possibilities are very limited.
OCCUPATIONAL TITLE:
7516-110 TIMBER CRUISER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	3	2	3	3	3	4	4	4	4	4	M247	0	5	7	91	061

7516-B LOG INSPECTING, GRADING, SCALING AND RELATED OCCUPATIONS 387, 687

WORK PERFORMED: This chapter includes occupations concerned with surveying timber stands to appraise yields of marketable lumber and to determine method of recovery, estimating marketable content of logs, and inspecting and grading logs for processing as lumber or pulpwood. Worker functions include: analysing data obtained from surveys of timbered areas; compiling reports indicating species, quality and size of trees; computing estimated yield of lumber of pulpwood; comparing logs to grade them according to size, species and condition; and manipulating equipment used to survey timber stands. Worker activities include: measuring height and diameter of trees; boring wood samples; preparing maps showing topographic features and location and types of timber; and marking trees for cutting or processing.
APTITUDES AND CAPACITIES: learning ability to understand the methods of log scaling, grading and timber marking; to exercise judgment in estimating marketable content of logs; and to understand forest conservation policies; numerical ability to make calculations when estimating marketable content of logs; spatial perception for log scalers, to estimate amount of lumber in logs and to mark felled trees in order to obtain maximum timber yield; form perception to grade trees according to to condition, size and species; eye-hand co-ordination to use such equipment as scale sticks and other measuring aids and stamping axes; strength to carry equipment up to ten pounds in weight, while walking through the forest; capacity to climb on felled trees and log piles; capacity to stoop, kneel, crouch or crawl when selecting trees for cutting and when examining felled trees; near-visual acuity to examine logs when grading or scaling; adaptability to work in extremely wet weather conditions, and while exposed to the hazard of falling trees and limbs.
TRAINING AND ENTRY REQUIREMENTS: eight years or more of general education; three months of vocational training in forestry; or six months to one year of on-the-job training.
ADVANCEMENT POSSIBILITIES: Workers who have acquired the necessary experience and training may advance to 7516-110 TIMBER CRUISER. Workers who have supervisory ability may advance to appropriate occupations in Unit Group 7510 FOREMEN, FORESTRY AND LOGGING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.
TRANSFER POSSIBILITIES: Workers are restricted, because of the specialization and the skills involved in the occupations, but may transfer to the other occupations within the cluster.
OCCUPATIONAL TITLES:

7516-118 LOG SCALER
7513-114T TIMBER MARKER
7516-122 LOG GRADER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	$\underline{4}$	4	$\underline{4}$	4	$\underline{4}$	4	4	4	4	L2347	046	3	5	913	02
			$\underline{3}$	$\underline{3}$		3											026

7517-A LOG HOISTING, SORTING, MOVING AND RELATED OCCUPATIONS 382, 682, 683

WORK PERFORMED: This chapter includes occupations concerned with rigging log-yarding systems, hoisting cut logs, hauling logs from site of operations to loading area, sorting logs at points of assembly, and forming log booms on water. Worker functions include: operating mobile log-yarding and hoisting equipment; driving logging tractors and operating accessories; manipulating tools, chains and cables when installing and adjusting rigging, and when mounting logging equipment on tractors, trucks, or cranes; handling axes, pike poles, power-saws and other logging tools; and signalling directions to winch operators or other workers. Work activities include: attaching pulleys, cables and guy lines to stumps; selecting logs for loading; fastening choker cables around logs; and guiding logs in water.

APTITUDES AND CAPACITIES: learning ability to understand and apply the techniques of sorting, hoisting and moving logs, and of mobile equipment or boat operation; spatial perception to observe relative paths or positions of moving logs, and to operate and drive mobile logging equipment; eye-hand-finger co-ordination and manual dexterity to move hand controls of logging equipment, use hand and power tools such as axe and powersaw, and guide logs using peavey or pike poles; eye-hand-foot co-ordination to drive and operate mobile logging equipment, and balance while working on log booms, or climbing onto log piles; ability to reach to guide logs, attach accessories to equipment, or fasten lines and cables to logs; adaptability to work outside while exposed to hazards such as falling trees, snapping cables, overturning machinery, or falling off logs in booms.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; up to six months of on-the-job training; six to eighteen months of experience in other occupations concerned with log hoisting, sorting and moving.

ADVANCEMENT POSSIBILITIES: Experienced workers may, with some additional training advance to higher skilled occupations within the chapter. Those with supervisory potential may also advance to 7510-118 FOREMAN, LOG-HOISTING, SORTING, MOVING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the chapter. Some workers may also transfer to appropriate occupations that require similar skills in other work fields such as construction, or mining and quarrying.

OCCUPATIONAL TITLES:

7517-110 STEEL-SPAR OPERATOR
7517-118 LOGGING-TRACTOR OPERATOR
7517-122 LOGGING-CRANE OPERATOR
7517-126 BOOMBOAT OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	5	3	4	5	3	4	3	3	5	L47	056	3-2	6-4	913	23Y
	4							3		4							

7517-D LOG HOISTING, SORTING, MOVING AND RELATED OCCUPATIONS 667, 687

WORK PERFORMED: This chapter includes occupations concerned with rigging log-yarding systems, hoisting cut logs, hauling logs from site of operations to loading area, sorting logs at points of assembly, and forming log booms on water. Worker functions include: operating mobile log-yarding and hoisting equipment; driving logging tractors and operating accessories; manipulating tools, chains and cables when installing and adjusting rigging, and when mounting logging equipment on tractors, trucks or cranes; handling axes, pike poles, power-saws and other logging tools; and signalling directions to winch operators or other workers. Work activities include: attaching pulleys, cables and guy lines to stumps; selecting logs for loading; fastening choker cables around logs; and guiding logs in water.

APTITUDES AND CAPACITIES: learning ability to understand and apply the techniques of sorting, hoisting and moving logs, and of mobile equipment or boat operation; spatial perception to observe relative paths or positions of moving logs, and to operate and drive mobile logging equipment; eye-hand-finger co-ordination and manual dexterity to move hand controls of logging equipment, use hand and power tools such as axe and powersaw, and guide logs using peavey or pike poles; eye-hand-foot co-ordination to drive and operate mobile logging equipment, and balance while working on log booms, or climbing onto log piles; ability to reach to guide logs, attach accessories to equipment, or fasten lines and cables to logs; adaptability to work outside while exposed to hazards such as falling trees, snapping cables, overturning machinery, or falling off logs in booms; strength to perform heavy work requiring lifting and carrying objects weighing in excess of fifty pounds; agility to climb over fallen trees and other ground obstructions and to climb onto log piles; ability to stoop, kneel, crouch and work in awkward positions.

TRAINING AND ENTRY REQUIREMENTS: eight years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may, with some additional training, advance to higher skilled occupations within the chapter. Those with supervisory potential may also advance to 7510-118 FOREMAN, LOG-HOISTING, SORTING, MOVING AND RELATED OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the chapter. Some workers may also transfer to appropriate occupations that require similar skills in other work fields such as construction, or mining and quarrying.

OCCUPATIONAL TITLES:

7517-142 CHASER
7517-146 LOADER, LOGGING TRUCK
7517-150 CHOKERMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	3	4	3	4	5	H234	056	2	4-2	13	23
				3		4	4										

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in forestry and logging. Worker functions include: handling cones, seedlings and pulp wood, and using tools such as the peavey, shovel, axe and mattock to work or move forest products. Work activities include: loading or stacking logs; pruning and thinning out trees; picking seed cones; planting seedling trees; spraying forest areas with insecticides; and suppressing forest fires.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow simple instructions to perform a variety of uncomplicated tasks; spatial perception to ensure even weight distribution when loading logs onto trucks, to select and thin out young trees, or to ignite back fires to hasten burn-out within contained areas; eye-hand-finger co-ordination and manual dexterity to use cant hooks, axes, shovels and other tools related to forest work; eye-hand-foot co-ordination to climb trees and traverse rough terrain; physical fitness, and sufficient strength to perform medium to very heavy work when lifting logs or when carrying seedlings, bags of seed cones, or tools and equipment; ability to climb trees and balance on limbs and log piles; ability to reach to pick seed cones and to stoop, kneel or crouch while planting seedling trees or thinning underbrush; adaptability to work outside while exposed to the hazards of falling trees and limbs.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: no specified educational level; on-the-job training ranging from a short demonstration to one month.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs, and advancement may be to more skilled occupations for workers who demonstrate ability, interest and initiative.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations within the chapter after short periods of orientation or to other labouring and elemental work of an outdoor nature.

OCCUPATIONAL TITLES:

7511-118T	TREE PRUNER
7511-122T	FOREST-FIRE FIGHTER
7513-126T	SWAMPER
7518-110	LOG LOADER
7518-114	SEED-CONE PICKER
7518-118	SPRAYER
7518-122	TREE PLANTER
7518-126	PULPWOOD PILER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	5	5	4	4	5	4	4	3	4	5	M-VH234	067	2-1	2-1	13	23
		4					3				4						

7711-A ROTARY WELL-DRILLING AND RELATED OCCUPATIONS

262, 362, 383, 464, 563, 662, 663

WORK PERFORMED: This chapter includes occupations concerned with drilling wells into the earth to extract oil and gas. Worker functions include: controlling the operation of rotary-drilling and power-hoisting equipment; manipulating hand tools to connect and disconnect fill-pipe casing and drill bits, and to make repairs to drilling equipment; comparing information obtained from core samples and measuring instruments; compiling data from drilling logs and core samples to determine nature of strata and decide treatment needed for oil and gas-bearing-rock formations to increase their production; and driving vehicles. Work activities include: erecting service rigs; selecting drill bits; capping, cementing and treating wells to regulate flow; replacing and adjusting wellhead equipment; stacking drill pipe; weighing and mixing drilling mud; and lubricating mechanical equipment.

APTITUDES AND CAPACITIES: learning and reasoning ability to understand the principles and apply the techniques involved in rotary well-drilling and related oil and natural gas production activities; spatial perception, especially important for drillers and those who service or treat wells, in order to visualize the location of the drill-bit in the well hole, the positioning of pipe sections that perception to examine core and drilling samples to determine the condition of the well, and to detect wear or flaws in parts when repairing drilling-rig equipment; eye-hand-finger co-ordination to control hoisting machinery that raises or lowers drill pipe, instruments or well clean-out equipment, and to place pipe sections in position accurately and quickly; manual dexterity to push or pull control levers of hoisting machinery, and to tighten or loosen threaded joints between pipe sections, and to handle tools to replace parts of drilling-rig equipment; strength to perform medium to heavy work requiring frequent lifting and carrying of tools and equipment weighing up to one hundred pounds; physical capacity to climb onto trucks and throughout drilling rigs, and to repair derrick equipment; capacity to stoop, kneel and crouch in awkward positions in order to lift or move heavy tools and change drill bars, and to reach, pull and push heavy piping into position above and below shoulder height; capacity to give or receive verbal instructions; visual acuity and depth perception to position drill pipe over drill hole, to read meters and guages, observe defect in machinery, and examine drilling or core samples to determine nature of strata; capacity to work outdoors under all weather conditions in water, mud and oil around drilling site, and with muddy equipment; capacity to work against a background of loud noises caused by drilling-rig machinery and diesel engines; capacity to adapt to hazardous conditions, such as risk of injury from moving equipment, slippery footing, and exposure to gas fires and explosions at well; adaptability to unpleasant atmospheric conditions such as the odour of hydrogen sulphide gas and diesel engine fumes.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; for operators of rotary well-drilling rigs and those who operate equipment to flush or remove obstructions from producing wells, two or four years of on-the-job training and related experience; for the remaining occupations, six months to two years of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: Workers may, with additional training, advance to higher skilled occupations within their cluster. Experienced workers with supervisory potential may also advance to 7710-126 FOREMAN, ROTARY WELL-DRILLING AND RELATED OCCUPATIONS, or to 7710-122 FOREMAN, OTHER ROCK AND SOIL DRILLING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within their respective clusters, or to occupations in Chapter 7713 OTHER ROCK AND SOIL DRILLING OCCUPATIONS; and Group 7719 MINING AND QUARRYING INCLUDING OIL AND GAS FIELD OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

7711-110 SERVICE-UNIT OPERATOR, OIL WELL
7711-114 CEMENTER, OIL WELL
7711-118 ROTARY DRILLER
7711-122 ROTARY-RIG ENGINEMAN
7711-126 ACIDIZER
7711-130 FORMATION-FRACTURING OPERATOR
7711-134 DERRICKMAN
7711-138 WELL PULLER
7711-142 CLEAN-OUT DRILLER
7711-146 HOIST OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	4	3	4	5	M-H34567	04567	4-3	7-5	91	OY
		4	3	4	4	5	4		4								

7711-B ROTARY WELL-DRILLING AND RELATED OCCUPATIONS 663, 683, 684, 687

WORK PERFORMED: This chapter includes occupations concerned with drilling wells into the earth to extract oil and gas. Worker functions include: controlling the operation of rotary-drilling and power-hoisting equipment; manipulating hand tools to connect and disconnect drill-pipe casing and drill bits, and to make repairs to drilling equipment; comparing information obtained from core samples and measuring instruments; compiling data from drilling gos and core samples to determine nature of strata and decide treatment needed for oil and gas-bearing-rock formations to increase their production; and driving vehicles. Work activities include: erecting service rigs; selecting drill bits; capping, cementing and treating wells to regulate flow; replacing and adjusting wellhead equipment; stacking drill pipe; weighing and mixing drilling mud; and lubricating mechanical equipment.

APTITUDES AND CAPACITIES: learning ability to understand the techniques involved in rotary well-drilling and related activities; eye-hand-finger co-ordination to dismantle and repair well-drilling equipment; manual dexterity to connect drilling pipe, assemble pumping equipment, casings and pipe sections, and handle tools to repair machinery; eye-hand-foot co-ordination to operate the levers, pedals and steering of vehicles; strength to perform medium to heavy work requiring frequent lifting and carrying of tools and equipment weighing up to one hundred pounds; physical capacity to climb onto trucks and throughout drilling rigs, and to repair derrick equipment; capacity to stoop, kneel and crouch in awkward positions in order to lift or move heavy tools and change drill bits, and to reach, pull and push heavy piping into position above and below shoulder height; capacity to give or receive verbal instructions; visual acuity and depth perception to position drill pipe over drill hole, to read meters and guages, observe defect in machinery, and examine drilling or core samples to determine nature of strata; capacity to work outdoors under all weather conditions in water, mud and oil around drilling site, and with muddy equipment; capacity to work against a background of loud noises caused by drilling-rig machinery and diesel engines; capacity to adapt to hazardous conditions, such as risk of injury from moving equipment, slippery footing, and exposure to gas fires and explosions at well; adaptability to unpleasant atmospheric conditions such as the odour of hydrogen sulphide gas and diesel engine fumes.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; three to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may, with additional training, advance to higher skilled occupations, or to Cluster A. Experienced workers with supervisory potential may advance to 7710-126 FOREMAN, ROTARY WELL-DRILLING AND RELATED OCCUPATIONS, or to 7710-122 FOREMAN, OTHER ROCK AND SOIL DRILLING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills in the cluster, to to occupations in Chapter 7713 OTHER ROCK AND SOIL DRILLING OCCUPATIONS; and Group 7719 MINING AND QUARRYING INCLUDING OIL AND GAS FIELD OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

7711-150	ACIDIZER HELPER
7711-154	CEMENTER HELPER, OIL WELL
7711-158	ROTARY-DRILLER HELPER
7711-162	FORMATION-FRACTURING-OPERATOR HELPER
7711-166	CLEAN-OUT-DRILLER HELPER
7711-170	ROUSTABOUT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	$\underline{4}$	4	$\underline{3}$	4	5	H234	04567	3-2	4-3	139	23
			5			4				$\underline{3}$							

7713-A OTHER ROCK AND SOIL DRILLING OCCUPATIONS

362, 382, 562, 662

WORK PERFORMED: This chapter includes occupations concerned with drilling rock and soil for a variety of purposes such as blasting to facilitate mining operations and construction projects, tapping sub-surface water and mineral deposits, breaking and separating rock, seismic prospecting, and taking core samples. Worker functions include: operating drilling equipment; manipulating tools to connect, assemble and adjust equipment; driving truck-mounted drilling rigs to work site; and handling air and water hoses, electric cables and drill bits. Work activities include: coupling hoses to supply lines; positioning equipment to drill holes in specified location and direction;

APTITUDES AND CAPACITIES: learning ability to understand and apply the principles involved in drilling operations and to operate drilling equipment safely and efficiently; spatial perception to visualize the required positioning of drilling equipment, the location of the drill bit in the drill hole, and the nature of the formations penetrated; eye-hand-finger co-ordination, finger dexterity and manual dexterity to operate controls of drilling equipment, skilfully use a variety of tools to make adjustments and repairs, erect and dismantle rigs, and make connections for lines and cables; eye-hand-foot co-ordination to drive vehicles or crawler mounted equipment and to operate controls such as levers and foot pedals; visual acuity to read meters and drawings or sketches, and to examine drill samples from holes and observe equipment while in operation; capacity to stoop and crouch to set up drilling equipment, connect drill bits and hoses, and repair equipment; adaptibility to wet and muddy conditions around equipment and drill holes; capacity to work while exposed to hazardous and unpleasant conditions such as cave-ins and loose rock, revolving drills, intense noise, vibration and dust.

TRAINING AND ENTRY REQUIREMENTS: eight to twelve years of general education; six months to two years of on-the-job training; six months to two years of related experience in this field of work.

ADVANCEMENT POSSIBILITIES: Workers with supervisory potential may advance to 7710-122 FOREMAN, OTHER ROCK AND SOIL DRILLING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers may, with limited additional training, transfer to other occupations within this cluster, or to appropriate occupations requiring similar skills in other chapters of Minor Group 771 MINING AND QUARRYING INCLUDING OIL AND GAS FIELD OCCUPATIONS.

OCCUPATIONAL TITLES:

7713-110	RAISE-BORING-MACHINE OPERATOR	7713-130	DRILLER, JET-PIERCING
7713-114	DRILLER, LONG HOLE	7713-134	DRILLER, SEISMIC PROSPECTING
7713-118	DRILLER, WATER-WELL	7713-138	FOUNDATION-DRILL OPERATOR
7713-122	DRILLING-MACHINE OPERATOR	7713-142	CHURN-DRILL OPERATOR
7713-126	CORE-DRILL OPERATOR	7713-146	DRIFTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	4	4	$\underline{3}$	4	4	$\underline{3}$	$\underline{4}$	$\underline{3}$	$\underline{3}$	5	M-H34567	I-04567	4-3	7-5	91	0Y8
		3	3							$\underline{4}$	4						

7713-B OTHER ROCK AND SOIL DRILLING OCCUPATIONS 664, 667, 683, 684

WORK PERFORMED: This chapter includes occupations concerned with drilling rock and soil for a variety of purposes such as blasting to facilitate mining operations and construction projects, tapping sub-surface water and mineral deposits, breaking and separating rock, seismic prospecting, and taking core samples. Worker functions include: operating drilling equipment; manipulating tools to connect, assemble and adjust equipment; driving truck-mounted drilling rigs to work site; and handling air and water hoses, electric cables and drill bits. Work activities include: coupling hoses to supply lines; positioning equipment to drill holes in specified location and direction; installing drill-bits; monitoring operation of drilling machines and making adjustments or adding steel as drill advances; examining drill cuttings or cores; and repairing and maintaining equipment.

APTITUDES AND CAPACITIES: learning ability to understand and apply drill assembly procedures and to follow directions; eye-hand co-ordination and manual dexterity to guide drill sections, fasten drills, attach air and water lines and to use a variety of tools during assembly and operational stages of drillings; eye-hand-foot co-ordination to climb and maintain balance while working on or around drilling rigs; capacity to stoop and crouch to set up drilling equipment, connect drill bits and hoses, and repair equipment; adaptibility to wet and muddy conditions around equipment and drill holes; capacity to work while exposed to hazardous and unpleasant conditions such as cave-ins and loose rock, revolving drills, intense noise, vibration and dust.

TRAINING AND ENTRY REQUIREMENTS: eight years of general education; up to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Occupations in this cluster are considered entry jobs, and advancement for experienced workers normally is to higher skilled occupations in Cluster A.

TRANSFER POSSIBILITIES: Workers may with limited additional training, transfer to other occupations within this cluster, or to appropriate occupations requiring similar skills in other chapters of Minor Group 771 MINING AND QUARRYING INCLUDING OIL AND GAS FIELD OCCUPATIONS.

OCCUPATIONAL TITLES:

7713-150	FOUNDATION-DRILL-OPERATOR HELPER
7713-154	DRILLER HELPER, WATER-WELL
7713-158	CORE-DRILL OPERATOR HELPER
7713-162	JACKHAMMER OPERATOR
7713-166	DRILLING-MACHINE-OPERATOR HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	$\underline{4}$	4	5	$\underline{4}$	4	$\underline{3}$	$\underline{3}$	5	H2345	B4567	2	3-2	193	2Y
			4				$\underline{3}$			$\underline{4}$							23

7715-A BLASTING OCCUPATIONS 261, 361, 363, 381

WORK PERFORMED: This chapter includes occupations concerned with assembling, placing and detonating explosive charges to loosen mineral ores in underground or surface mines, or to loosen earth, rock and stumps or demolish structures on construction sites. Worker functions include: analyzing data pertaining to the mass, composition, location or structure of the material to be blasted in order to determine the position, type and amount of explosive required; working with care and precision when assembling and positioning explosive charges; compiling information regarding working procedures at blasting site to ensure safety regulations are followed; and handling explosives, detonating wires, safety mats and other blasting equipment. Work activities include: driving truck containing explosives; storing and maintaining inventories of explosives; inspecting blasting area for safety; and removing loose rock from working face of mines or excavations.

APTITUDES AND CAPACITIES: learning ability to understand and apply the principles, techniques and safety regulations applicable to the use, handling, and firing of explosives, and to exercise judgment in determining the location and most appropriate blasting procedure to be followed; spatial perception to visualize the pattern and amounts of explosives required to obtain the desired results, based on observation of the characteristics of rock faces, structures and dormations, and to interpret seismic wave readings used to locate oil and natural gas deposits; eye-hand-finger co-ordination and manual dexterity to assemble explosive charges or perforators, connect detonating wires and charge drill holes with explosives; finger dexterity to perform such tasks as assembling perforating gun components, using specialized tongs, screwdrivers and wrenches; eye-hand-foot co-ordination to drive vehicles, and to balance and climb on scaffolds and rough terrain when drilling blast holes into working face or removing loose rock from walls of mines, pits and construction sites; capacity to perform medium to heavy work requiring frequent lifting and carrying of equipment weighing up to fifty pounds, or occasional pushing and pulling on scaling bar, exerting a force of up to one hundred pounds; capacity to stoop, kneel and crouch when inserting explosives into blast holes; ability to communicate orally with blasting crews, and to hear blasting signals, and sounds which might indicate unsafe conditions in mines, pits or quarries; near visual acuity to assemble and connect explosive charges, and far visual acuity to identify composition and assess mass of ground to determine the most desirable blasting pattern; adaptability to working outside with little or not protection from the weather, or underground in mines; capacity to withstand intense noise when detonating explosive charges; adaptability to unpleasant and hazardous conditions associated with working in a mine or pit, and when working with dangerous explosives.

TRAINING AND ENTRY REQUIREMENTS: nine to ten years of general education; on-the-job training of six to twelve months; previous experience in related work for at least six months; completion of provincial licencing and certification requirements.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 7710-110 FOREMAN, BLASTING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer opportunities for workers are normally limited to other appropriate occupations within the cluster. With some additional training, workers may, because of long and co-operative team-work with drillers, transfer to appropriate occupations in Chapter 7713 OTHER ROCK AND SOIL DRILLING OCCUPATIONS.

OCCUPATIONAL TITLES:

7715-110 BLASTER (mining & quarrying)	7715-122 PIT SCALER
7715-114 BLASTER (Construction)	7715-126 SHOOTER, SEISMOGRAPH
7715-118 PERFORATOR, OIL WELL	7715-130 PERFORATING-GUN LOADER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	2	3	4	4	4	3	3	4	M-H34567	B-0567	4-3	7-5	917	9Y8
			3	3	4	5	3	3	4	4							
										2							

7715-B BLASTING OCCUPATIONS 667, 687

WORK PERFORMED: This chapter includes occupations concerned with assembling, placing and detonating explosive charges to loosen mineral ores in underground or surface mines, or to loosen earth, rock and stumps or demolish structures on construction sites. Worker functions include: analyzing data pertaining to the mass, composition, location or structure of the material to be blasted in order to determine the position, type and amount of explosive required; working with care and precision when assembling and positioning explosive charges; compiling information regarding working procedures at blasting site to ensure safety regulations are followed; and handling explosives, detonating wires, safety mats and other blasting equipment. Work activities include: driving truck containing explosives; storing and maintaining inventories of explosives; inspecting blasting area for safety; and removing loose rock from working face of mines or excavations.

APTITUDES AND CAPACITIES: learning ability to understand established blasting procedures and regulations, and to follow directions; eye-hand co-ordination and manual dexterity for a variety of tasks such as attaching detonating wires, charging drill holes with explosives, covering and tamping holes with clay or similar material, and for using scaling tools; eye-hand-foot co-ordination to drive vehicles, and to balance and climb on scaffolds and rough terrain when drilling blast holes into working face or removing loose rock from walls of mines, pits and construction sites; capacity to perform medium to heavy work requiring frequent lifting and carrying of equipment weighing up to fifty pounds, or occasional pushing and pulling on scaling bar, exerting a force of up to one hundred pounds; capacity to stoop, kneel and crouch when inserting explosives into blast holes; ability to communciate orally with blasting crews, and to hear blasting signals, and sounds which might indicate unsafe conditions in mines, pits or quarries; near visual acuity to assemble and connect explosive charges, and far visual acuity to identify composition and assess mass of ground to determine the most desirable blasting pattern; adaptability to working outside with little or no protection from the weather, or underground in mines; capacity to withstand intense noise when detonating explosive charges; adaptability to unpleasant and hazardous conditions associated with working in a mine or pit, and when working with dangerous explosives.

TRAINING AND ENTRY REQUIREMENTS: eight years of general education; up to three months of on-the-job training; completion of provincial licencing and certification requirements.

ADVANCEMENT POSSIBILITIES: Advancement for experienced helpers normally is to higher skilled occupations in Cluster A.

TRANSFER POSSIBILITIES: Transfer opportunities for workers in this chapter are normally limited to other appropriate occupations within their own cluster.

OCCUPATIONAL TITLES:

7715-134 BLASTER HELPER
7715-138 SHOOTER HELPER
7715-142 PIT-SCALER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	5	4	4	5	4	4	3	4	4	M-H34567	0567	3-2	4-3	139	3Y8
	4								4	3	5						

7717 - MINING AND QUARRYING: CUTTING, HANDLING AND LOADING OCCUPATIONS

567, 663, 682, 683, 685

WORK PERFORMED: This chapter includes occupations concerned with operating machines that cut and remove minerals and other materials in underground and open pit mines and quarries, and load removed material onto conveyances for transfer to processing, storage or waste disposal locations. The primary worker function is driving and operating mining machinery and equipment, such as excavators, power shovels and conveyors. Work activities include: moving controls of cutting and loading machines; starting and stopping conveying equipment; observing flow of material and operation of equipment to detect abnormal conditions; loading and unloading mine cages; and making adjustments and minor repairs to machinery and equipment.

APTITUDES AND CAPACITIES: learning ability to understand the operation of complex heavy machinery, and to apply the techniques involved in positioning machinery and equipment when excavating ore from mines or stone from quarries; spatial perception to judge distances when manoeuvring, cutting or excavating machines and to visualize optimum placement for equipment; eye-hand-finger co-ordination and manual dexterity to start, regulate and stop equipment; eye-hand-foot co-ordination to operate the levers and pedals of cutting and excavating machinery; capacity to perform light to heavy work requiring frequent lifting or carrying of tools and equipment weighing up to 20 pounds, or occasional pushing and pulling with a force of up to 100 pounds; ability to climb and balance or stoop and crouch to operate, clean and lubricate machinery and equipment; colour vision to detect high grade ore; adaptability to working under unpleasant conditions such as being exposed to noise and vibration of mining machinery, and fumes, odours and dusts from blasting and mining operations; adaptability to working while exposed to hazards such as cave-ins, proximity of explosives, high voltage cables, heavy and often awkwardly moving equipment and to working on elecated platforms.

TRAINING AND ENTRY REQUIREMENTS: ten years of general education; three months to two years of on-the-job training and experience in related occupations.

ADVANCEMENT POSSIBILITIES: Experienced workers may advance to other occupations within the chapter that require higher skill levels. Those with supervisory potential may advance to 7710-114 FOREMAN, CUTTING AND LOADING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer, with limited additional training, to occupations requiring similar skills in Minor Group 771 MINING AND QUARRYING INCLUDING OIL AND GAS FIELD OCCUPATIONS or to occupations in construction trades concerned with operating earth-moving equipment such as 8711-122 MUCKING-MACHINE OPERATOR, 8711-142 POWER-SHOVEL OPERATOR and 8711-174 LOADER OPERATOR.

OCCUPATIONAL TITLES:

7717-110 BUCKETWHEEL-EXCAVATOR OPERATOR
7717-114 AUGERMAN
7717-116 STRIPPING-SHOVEL OPERATOR
7717-118 CONTINUOUS-MINING-MACHINE OPERATOR
7717-122 CUTTING-MACHINE OPERATOR
7717-126 QUARRYMAN
7717-130 AERIAL-TRIM OPERATOR
7717-134 SLUSHER OPERATOR
7717-138 BELTWAGON OPERATOR
7717-142 BOOM-CONVEYOR OPERATOR
7717-146 LOADING-MACHINE OPERATOR
7717-150 CAGEMAN
7717-154 MECHANICAL-SHOVEL OPERATOR
7717-158 PEAT MOSS-CUTTING-MACHINE OPERATOR
7717-162 PEAT MOSS-GATHERING MACHINE OPERATOR
7717-166 CHUTE LOADER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	4	5	3	4	3	4	5	L-H2347	I-0567	3	6-2	913	23Y8
	4		5	4		4	4		4	3							

7718 - OCCUPATIONS IN LABOURING & OTHER ELEMENTAL WORK: MINING & QUARRYING, INCLUDING OIL & GAS FIELDS

667, 687, 887

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work found in mining and quarrying operations. The primary worker function is handling, moving or carrying mine supplies and equipment, spilled ore and waste materials, and using picks, crow-bars and similar tools to perform manual work. Work activities include: shovelling ore and rock into mine cars and trucks; positioning slushing machinery; assisting in the erection of mine supports; freeing ore blockages in grizzlies; spraying rock dust over mine surfaces; picking waste material from conveyors; cleaning refuse from mine and railroad cars; and cutting or gathering peat moss.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand simple instructions and to apply them correctly in performing a variety of uncomplicated tasks; eye-hand-finger co-ordination and manual dexterity when working with tools, positioning equipment, putting up mine supports or picking objects from moving conveyors; eye-hand-foot co-ordination to safely accomplisy tasks such as attaching cables and slings, coupling and moving mine cars, and positioning mining equipment; physical strength to perform medium to heavy work such as digging ditches and working with pick, hammer and crowbar, and frequently lifting and carrying objects weighing up to one hundred pounds; capability of working for long periods of time in a stooped position while shovelling ore and rock, picking up waste materials, pushing ore cars and assisting with installation of underground supports; capacity for working in confined areas and in an underground environment which is frequently humid and wet; capacity for working in noisy and dusty locations and in proximity to mine or quarry machinery where possible risk of body injury exists.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: no specific educational requirements; one-the-job training ranging from a short demonstration to one month.

ADVANCEMENT POSSIBILITIES: Many of these occupations are considered entry jobs and advancement is normally to more highly skilled occupations in mining or quarrying. Those who acquire additional training may advance to occupations such as operators of mining and quarrying equipment. Experienced workers with supervisory ability may advance to 7710-118 FOREMAN, LABOURERS AND OTHER ELEMENTAL WORKERS. See also chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations within this chapter that require similar skills. With limited additional training, transfer may also be to other labouring occupations such as 8718-118 LABOURER, EXCAVATION, and 8798-114 CONSTRUCTION LABOURER.

OCCUPATIONAL TITLES:

7718-110	LABOURER, GENERAL, MINE
7718-114	LABOURER, GENERAL, QUARRY
7717-170T	COBBER
7718-118	SLUSHER-OPERATOR HELPER
7718-122	ROCK DUSTER
7718-126	SLATE PICKER
7718-130	TIMBER & STEEL-PROP SETTER HELPER
7718-134	PEAT MOSS GATHERER, HYDRAULIC
7718-138	CAR CLEANER
7718-142	GRIZZLY WORKER
7718-146	PEAT MOSS CUTTER, HAND

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	5	5	4	4	5	4	4	3	4	5	M-H2347	B4567	2-1	2-1	31	231
		4							4								23

8111-A CRUSHING AND GRINDING OCCUPATIONS, MINERAL ORES 262, 582

WORK PERFORMED: This chapter includes occupations concerned with crushing and grinding minerals and ores to a smaller state, for industrial use or for further processing. Worker functions include: analyzing production schedules to determine amounts and grades of specified materials required for processing; operating or tending equipment that crushes or grinds minerals and ores; manipulating hand tools to adjust equipment; shovelling spillage back onto conveyors that feed materials into mills; and handling ore and a variety of tools when clearing blockages. Work activities include: moving controls to start, stop and regulate operation of equipment; observing panelboards, material flow and equipment operation to detect malfunctions; breaking up large ore pieces using bar, pick or hammer; collecting material samples for laboratory analysis; and cleaning and lubricating equipment.
APTITUDES AND CAPACITIES: learning ability to understand crushing and grinding operations, and to work from detailed written or oral instructions; form perception to detect oversize pieces of ore and blockages on conveyors and to detect worn equipment; eye-hand co-ordination to make adjustments to regulate the operation of crushing and grinding equipment while monitoring gauges, meters and material flow; manual dexterity to operate equipment controls and use hand tools; physical fitness and strength to perform light to medium work requiring the lifting of tools and material weighing up to fifty pounds, the breaking of oversize lumps of ore using hammers, the unplugging of blockages, or the shovelling of spilled material onto conveyors; agility to climb stairs and ladders and balance on catwalks when moving between various levels in processing plant; ability to stoop, crouch, kneel or crawl in order to perform such tasks as oiling equipment and unplugging blocked conveyors; good visual acuity, both near and far, to read gauges and meters and to observe the flow of material to crushers and grinders from a distance; colour vision, required occasionally, to observe indicator lights on panelboards and when conducting titrations; capacity to work in conditions of extreme noise, vibration, dusts, odours and fumes caused by crushing and grinding equipment; adaptability to working in conditions where there is exposure to a variety of hazards, such as moving mechanical parts, flying particles, chemical burns and falls; spatial perception to interpret abnormalities in equipment operation from panelboard indicators; clerical perception to study production schedules and to maintain records of ore processed, machine breakdowns, repairs made and other production data.
TRAINING AND ENTRY REQUIREMENTS: nine to eleven years of general education; six months to two years of on-the-job training and related experience in lower level occupations under the guidance of an experienced operator.
ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 8110-110 FOREMAN, CRUSHING AND GRINDING OCCUPATIONS, MINERAL ORES. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile. Possibilities for advancement for workers also exist to other mineral ore processing occupations found in Minor Group 811 MINERAL ORE TREATING OCCUPATIONS.
TRANSFER POSSIBILITIES: Transfer possibilities for workers may be to occupations requiring similar skills within the cluster, or to other appropriate mineral ore treating occupations in Minor Group 811 MINERAL ORE TREATING OCCUPATIONS.
OCCUPATIONAL TITLES:

8111-110 PANELBOARD OPERATOR	8111-114 GRINDING-MILL OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3 4	3	4	4	3	4	3	5	4	L4567	I57	4-3	6-5	91	YO

8111-B CRUSHING AND GRINDING OCCUPATIONS, MINERAL ORES 485, 664, 665, 685

WORK PERFORMED: This chapter includes occupations concerned with crushing and grinding minerals and ores to a smaller state, for industrial use or for further processing. Worker functions include: analyzing production schedules to determine amounts and grades of specified materials required for processing; operating or tending equipment that crushes or grinds minerals and ores; manipulating hand tools to adjust equipment; shovelling spillage back onto conveyors that feed materials into mills; and handling ore and a variety of tools when clearing blockages. Work activities include: moving controls to start, stop and regulate operation of equipment; observing panelboards, material flow and equipment operation to detect malfunctions; breaking up large ore pieces using bar, pick or hammer; collecting material samples for laboratory analysis; and cleaning and lubricating equipment.

APTITUDES AND CAPACITIES: learning ability to understand crushing and grinding operation, and to work from detailed written or oral instruction; form perception to detect oversize pieces of ore and blockages on conveyors and to detect worn equipment; eye-hand co-ordination to make adjustments to regulate the operation of crushing and grinding equipment while monitoring gauges, meters and material flow; manual dexterity to operate equipment controls and use hand tools; physical fitness and strength to perform light to medium work requiring the lifting of tools and material weighing up to fifty pounds, the breaking of oversize lumps of ore using hammers, the unplugging of blockages, or the shovelling of spilled material onto conveyors; agility to climb stairs and ladders and balance on catwalks when moving between various levels in processing plant; ability to stoop, crouch, kneel or crawl in order to perform such tasks as oiling equipment and unplugging blocked conveyors; good visual acuity, both near and far, to read gauges and meters and to observe the flow of material to crushers and grinders from a distance; colour vision, required occasionally, to observe indicator lights on panelboards and when conducting titrations; capacity to work in conditions of extreme noise, vibration, dusts, odours and fumes caused by crushing and grinding equipment; adaptability to working in conditions where there is exposure to a variety of hazards, such as moving mechanical parts, flying particles, chemical burns and falls; spatial perception to observe the operation of equipment and make necessary adjustments.

TRAINING AND ENTRY REQUIREMENTS: seven to nine years of general education; two to twelve months of on-the-job training and related experience in a helper occupation.

ADVANCEMENT POSSIBILITIES: Workers may advance to more complex occupations in Cluster A. Workers with supervisory potential may also advance to 8110-110 FOREMAN, CRUSHING AND GRINDING OCCUPATIONS, MINERAL ORES. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile. Possibilities for advancement also exist to other mineral ore processing occupations found in Minor Group 811 MINERAL ORE TREATING OCCUPATIONS.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to occupations requiring similar skills within their cluster, or to other appropriate mineral ore treating occupations in Minor Group 811 MINERAL ORE TREATING OCCUPATIONS.

OCCUPATIONAL TITLES:

8111-118	SLURRY-CONTROL MAN
8111-122	GRINDING AND CLASSIFIER TENDER
8111-126	MILL TENDER
8111-130	CRUSHER TENDER
8111-132	CRUSHER SETTER
8111-134	HYDRATE-SCALE-RECLAMATION MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	5	5	L-M247	I-B567	3-2	5-3	913	2Y
	3		5			4	4				4						

8113-A MIXING, SEPARATING, FILTERING AND RELATED OCCUPATIONS, MINERAL ORES

362, 482, 662, 682

WORK PERFORMED: This chapter includes occupations concerned with combining mineral ores with solvents or amalgams to produce a single mass or compound; and separating out desirable materials present in ores or concentrates. Worker functions include: operating, tending or feeding equipment such as agitators, filters, precipitators, evaporators, leachers and classifiers; and handling a variety of tools, parts and materials. Work activities include: setting switches and machine controls; opening and closing valves to start, stop and regulate process flow, and pumping operations; observing panelboard and making adjustments to maintain operating conditions within specified limits; testing solutions to determine physical or chemical characteristics; collecting samples for laboratory analysis; removing residue from sides and bottoms of tanks; and cleaning, lubricating and making minor adjustments to equipment.

APTITUDES AND CAPACITIES: learning ability to understand the techniques of mineral-ore mixing, separating, filtering and related operations, and to follow written or oral work instructions; eye-hand co-ordination to adjust valves and equipment controls while monitoring gauges, meters and indicator lights; manual dexterity and the capacity to reach in any direction to turn valves, operate controls, and use hand tools to set up, adjust and repair equipment; strength to perform light to medium work, requiring the lifting and carrying of tools, parts and materials weighing up to fifty pounds, and physical capacity to shovel material into or out of processing tanks or to scrape caked material from tank sides; capacity to climb stairs and ladders, and balance on catwalks when moving between floors or levels in processing plant; ability to stoop, crouch, kneel or crawl in order to shovel materials, and to set up, clean, lubricate and repair equipment; visual acuity, both near and far, to observe gauges, meters and charts, to read measuring instruments such as hydrometers and pH meters, and to observe processing operations from a distance; colour vision to recognize indicator lights on panelboards; capacity to work while exposed to generally unpleasant conditions such as wetness and dampness, noise and vibration, and dusts, fumes and odours from processing operations; capacity for working in conditions where there is exposure to a variety of hazards such as moving mechanical parts, falls, physical strains, chemical burns, molten metal, and explosions from accumulated gases; spatial perception to understand circulation of product through equipment and the effect of irregularities in one area on total system function; to translate control panel indications into the actual operating porcess, and to read charts and graphs of operation; form perception for such activities as observing the deposition of metal on cathode in electrolytic refining, and liquid levels in tanks.

TRAINING AND ENTRY REQUIREMENTS: nine to ten years of general education; four months to two years of on-the-job training and experience in related occupations of lesser complexity.

ADVANCEMENT POSSIBILITIES: Workers may advance to higher skilled occupations within the cluster. Experienced workers with supervisory potential may also advance to 8110-126 FOREMAN, MIXING, SEPARATING, FILTERING AND RELATED OCCUPATIONS, MINERAL ORES. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations in the cluster. Transfer possibilities may also be to appropriate occupations requiring similar skills in Minor Groups 811 MINERAL ORE TREATING OCCUPATIONS; and 816/817 CHEMICALS, PETROLEUM, RUBBER, PLASTIC AND RELATED MATERIALS PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8113-110 ELECTROLYTIC REFINER
8113-114 GRINDING-AND-FLOTATION OPERATOR
8113-118 SLIME-RECOVERY OPERATOR
8113-122 CLASSIFIER OPERATOR
8113-126 LEACHING OPERATOR
8113-130 RESIDUAL-METAL RECOVERER
8113-150 WATER-TREATMENT-PLANT OPERATOR
8113-172 SINK-FLOAT OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	4	4	4	4	3	5	4	L-M2347	I4567	3	6-4	91	0Y
				4	3	5	3				5						

8113-B MIXING, SEPARATING, FILTERING & RELATED OCCUPATIONS, MINERAL ORES 585, 565, 685

WORK PERFORMED: This chapter includes occupations concerned with combining mineral ores with solvents or amalgams to produce a single mass or compound; and separating out desirable materials present in ores or concentrates. Worker functions include: operating, tending or feeding equipment such as agitators, filters, precipitators, evaporators, leachers and classifiers; and handling a variety of tools, parts and materials. Work activities include: setting switches and machine controls; opening and closing valves to start, stop and regulate process flow, and pumping operations; observing panelboard and making adjustments to maintain operating conditions within specified limits; testing solutions to determine physical or chemical characterists; collecting samples for laboratory analysis; removing residue from sides and bottoms of tanks; and cleaning, lubricating and making minor adjustments to equipment.

APTITUDES AND CAPACITIES: learning ability to understand the techniques of mineral-ore mixing, separating, filtering and related operations, and to follow written or oral work instructions; eye-hand co-ordination to adjust valves and equipment controls while monitoring gauges, meters and indicator lights; manual dexterity and the capacity to reach in any direction to turn valves, operate controls, and use hand tools to set up, adjust and repair equipment; strength to perform light to medium work, requiring the lifting and carrying of tools, parts and materials weighing up to fifty pounds; and physical capacity to shovel material into or out of processing tanks or to scrape caked material from tank sides; capacity to climb stairs and ladders, and balance on catwalks when moving between floors or levels in processing plant; ability to stoop, crouch, kneel or crawl in order to shovel materials, and to set up, clean lubricate and repair equipment; visual acuity, both near and far, to observe gauges, meters and charts, to read measuring instruments such as hydrometers and pH meters, and to observe processing operations from a distance; colour vision to recognize indicator lights on panelboards; capacity to work while exposed to generally unpleasant conditions such as wetness and dampness, noise and vibration, and dusts, fumes and odours from processing operations; capacity for working in conditions where there is exposure to a variety of hazards such as moving mechanical parts, falls, physical strains, chemical burns, molten metal, and explosions from accumulated gases; form perception for such activities as observing the deposition of metal on cathode in electrolytic refining, and liquid levels in tanks.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; one month to one year of on-the-job training and experience in related work.

ADVANCEMENT POSSIBILITIES: Workers may advance to higher skilled occupations within the cluster, or from this cluster to Cluster A. Experienced workers with supervisory potential may also advance to 8110-126 FOREMAN, MIXING, SEPARATING, FILTERING AND RELATED OCCUPATIONS, MINERAL ORES. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations within their cluster. Transfer possibilities may also be to appropriate occupations requiring similar skills in Minor Groups 811, MINERAL ORE TREATING OCCUPATIONS; and 816/817, CHEMICALS, PETROLEUM, RUBBER, PLASTIC AND RELATED MATERIALS PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8113-134	DEWATERER TENDER
8113-138	COTTRELL TENDER
8113-142	PRECIPITATOR
8113-146	HEAVY-MEDIA TENDER
8113-152	COAL-WASH-PLANT TENDER
8113-154	FLOTATION-CELL TENDER
8113-158	ALUMINA-CLARIFIER TENDER
8113-162	THICKENER TENDER
8113-164	CADMIUM RECOVERER
8113-166	COPPER-DUST COLLECTOR
8113-168	FILTERING ATTENDANT
8113-170	ORE SEPARATOR
8113-174	TABLEMAN
8113-178	ZINC-CHLORIDE TENDER
8113-182	REAGENT TENDER
8113-186	DIGESTER TENDER
8113-190	MAGNETIC-SEPARATOR TENDER
8113-194	SPIRAL ATTENDANT
8113-198	AMALGAMATOR TENDER
8113-202	BRINE MAKER
8113-204	COAL SEPARATOR
8113-205	CONE TENDER
8113-206	ELECTROLYTIC-REFINER HELPER
8113-210	SCREENMAN
8113-214	SLIME TREATER
8113-218	WET-PLANT TENDER
8113-226	ASBESTOS SCREENMAN
8113-230	BAGHOUSE MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	4	4	4	4	4	4	4	4	3	5	5
	3		5			5	3		4	4	4

PA	EC	GED	SVP	INTS.	TEMPS.
L-M247	I4567	3-2	5-2	913	20Y 23Y

8113-C MIXING, SEPARATING, FILTERING AND RELATED OCCUPATIONS, MINERAL ORES

587, 685, 686, 687

WORK PERFORMED: This chapter includes occupations concerned with combining mineral ores with solvents or amalgams to produce a single mass or compound; and separating out desirable materials present in ores or concentrates. Worker functions include: operating, tending or feeding equipment such as agitators, filters, percipitators, evaporators, leachers and classifiers; and handling a variety of tools, parts and materials. Work activities include: setting switches and machine controls; opening and closing valves to start, stop and regulate process flow, and pumping operations; observing panelboard and making adjustments to maintain operating conditions within specified limits; testing solutions to determine physical or chemical characteristics; collecting samples for laboratory analysis; removing residue from sides and bottoms of tanks; and cleaning, lubricating and making minor adjustments to equipment.

APTITUDES AND CAPACITIES: learning ability to understand the techniques of mineral-ore mixing, separating, filtering and related operations, and to follow written or oral work instructions; eye-hand co-ordination to adjust valves and equipment controls while monitoring gauges, meters and indicator lights; manual dexterity and the capacity to reach in any direction to turn valves, operate controls, and use hand tools to set up, adjust and repair equipment; strength to perform light to medium work, requiring the lifting and carrying of tools, parts and materials weighing up to fifty pounds; and physical capacity to shovel material into or out of processing tanks or to scrape caked material from tank sides; capacity to climb stairs and ladders, and balance on catwalks when moving between floors or levels in processing plant; ability to stoop, crouch, kneel or crawl in order to shovel material and to set up, clean, lubricate and repair equipment; visual acuity, both near and far, to observe gauges, meters and charts, to read measuring instruments such as hydrometers and pH meters, and to observe processing operations from a distance; colour vision to recognize indicator lights on panelboards; capacity to work while exposed to generally unpleasant conditions such as wetness and dampness, noise and vibration, and dusts, fumes and odours from processing operations; capacity for working in conditions where there is exposure to a variety of hazards such as moving mechanical parts, falls, physical strains, chemical burns, molten metal, and explosions from accumulated gases.

TRAINING AND ENTRY REQUIREMENTS: seven or eight years of general education; one to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may advance to higher skilled occupations within the cluster, or from this cluster to Cluster B, and from B to A. Experienced workers with supervisory potential may also advance to 8110-126 FOREMAN, MIXING, SEPARATING, FILTERING AND RELATED OCCUPATIONS, MINERAL ORES. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations within their cluster. Transfer possibilities may also be to appropriate occupations requiring similar skills in Minor Groups 811 MINERAL ORE TREATING OCCUPATIONS; and 816/817 CHEMICALS, PETROLEUM, RUBBER, PLASTIC AND RELATED MATERIALS PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8113-222	ZINC-VAPOR CONDENSER
8113-234	PRECIPITATOR HELPER
8113-238	REAGENT-TENDER HELPER
8113-242	ALUMINA-CLARIFIER-TENDER HELPER
8113-244	COTTRELL-TENDER HELPER
8113-246	FLOTATION-CELL-TENDER HELPER
8113-250	SLIME-RECOVERY-OPERATOR HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4 5	4 3	4	4 3	5 4	5	M234	I4567	2	3-2	13	23

8115-A MELTING AND ROASTING OCCUPATIONS, MINERAL ORES

462, 662, 682

WORK PERFORMED: This chapter includes occupations concerned with heating mineral ores or concentrates to change them from a solid to a liquid state for compounding with other materials, and roasting ores and concentrates to remove impurities. Worker functions include: operating, controlling, tending or feeding equipment such as furnaces, kilns and sintering machines to process mineral ores; and comparing processed materials with specified standards. Work activities include: setting equipment controls and opening and closing valves to start, stop and regulate charging and processing operations; observing indicating or recording devices and material being processed and maintaining operating conditions within specified limits by making required adjustments; testing samples, or forwarding samples to laboratory for analysis; and cleaning, lubricating and making minor adjustments to equipment.

APTITUDES AND CAPACITIES: learning ability to understand mineral-ore melting and roasting operations, apply the techniques involved, and carry out detailed written or oral work instructions; form perception to examine finished materials for deviations from standards; eye-hand co-ordination and manual dexterity to adjust valves and equipment controls while monitoring gauges, charts and meters, and to use pick, shovel, bars and other tools; strength to perform medium work requiring the lifting of tools and materials weighing up to fifty pounds, and capacity for pushing handtrucks, or chipping caked material from chutes and spouts; visual acuity, both near and far, to read guages, meters and recorders, and to observe kiln or roaster operation; capacity for working in the presence of extreme heat, and noise, vibration, odours, dusts and gases resulting from processing operations; capacity for working in conditions where there are physical hazards such as exposure to hot materials, moving mechanical parts and lead poisoning; spatial perception to observe equipment in operation or flow of material in process and make necessary adjustments; ability to climb steps and ladders between floor levels to observe operating equipment and processes.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; previous related work experience and on-the-job training, ranging from four months to two years, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Workers may advance within the cluster. Experienced workers with supervisory potential may advance to 8110-122 FOREMAN, MELTING AND ROASTING OCCUPATIONS, MINERAL ORES. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer within their cluster, or to appropriate occupations requiring similar skills in Minor Group 811 MINERAL ORE TREATING OCCUPATIONS: and Chapter 8131 METAL SMELTING, CONVERTING AND REFINING FURNACEMEN; and 8151 FURNACEMEN AND KILNMEN: CLAY, GLASS AND STONE.

OCCUPATIONAL TITLES:

8115-110 ROASTER OPERATOR
8115-114 LIMESTONE BURNER
8115-118 SINTERING-MACHINE OPERATOR
8115-122 CALCINER
8115-126 KILN OPERATOR

QUALIFICATIONS PROFILES:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	4	5	4	4	3	5	4	M24567	I3567	3	6-4	91	OY
				3	3	4	3		4	4	5						

8115-B MELTING AND ROASTING OCCUPATIONS, MINERAL ORES

665, 682, 686

WORK PERFORMED: This chapter includes occupations concerned with heating mineral areas or concentrates to change them from a solid to a liquid state for compounding with other materials, and roasting ores and concentrates to remove impurities. Worker functions include: operating, controlling, tending or feeding equipment such as furnaces, kilns and sintering machines to process mineral ores; and comparing processed materials with specified standards. Work activities include: setting equipment controls and opening and closing valves to start, stop and regulate charging and processing operations; observing indicating or recording devices and material being processed and maintaining operating conditions within specified limits by making required adjustments; testing samples, or forwarding samples to laboratory for analysis; and cleaning, lubricating and making minor adjustments to equipment.

APTITUDES AND CAPACITIES: learning ability to understand mineral-ore melting and roasting operations, apply the techniques involved, and carry out detailed written or oral work instructions; form perception to examine finished materials for deviations from standards; eye-hand co-ordination and manual dexterity to adjust valves, and equipment controls while monitoring gauges, charts and meters, and to use pick, shovel, bars and other tools; strength to perform medium work requiring the lifting of tools and materials weighing up to fifty pounds, and capacity for pushing handtrucks or chipping caked material from chutes and spouts; visual acuity both near and far, to read gauges, meters and recorders, and to observe kiln or roaster operation; capacity for working in the presence of extreme heats, and noise, vibration, odours, dusts and gases resulting from processing operations; capacity for working in conditions where there are physical hazards such as exposure to hot materials, moving mechanical parts and lead poisoning.

TRAINING AND ENTRY REQUIREMENTS: seven to nine years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in Cluster B may advance to more skilled occupations in Cluster A. Experienced workers in this chapter with supervisory potential may advance to 8110-122 FOREMAN, MELTING AND ROASTING OCCUPATIONS, MINERAL ORES. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations within the cluster, or to appropriate occupations requiring similar skills in Minor Group 811 MINERAL ORE TREATING OCCUPATIONS; and Chapter 8131 METAL SMELTING, CONVERTING AND REFINING FURNACEMEN; and 8151 FURNACEMEN AND FILNMEN: CLAY, GLASS AND STONE.

OCCUPATIONAL TITLES:

8115-130	ORE ROASTER	8115-138	LIMESTONE-BURNER HELPER
8115-134	ROTARY-KILN TENDER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	4	4	M47	I3567	3-2	4-2	139	23Y
			5			4	4		4		5						

8116 - INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, MINERAL ORE TREATING

384, 385, 484, 667, 684

WORK PERFORMED: This chapter includes occupations concerned with performing routine evaluation tests and other quality-control activities in mineral-ore treating. Worker functions include: comparing physical characteristics of minerals and ore samples to specified standards; computing percentages of minerals contained in ore samples; compiling inspection and test results; manipulating tools and specialized equipment to take samples, perform tests, and inspect or grade materials; and handling samples of ore and mineral products. Work activities include: collecting samples from various plant or mine locations; dumping materials into machines that crush, grind, separate or blend them preparatory to testing; testing materials to determine moisture content, hardness and other physical characteristics; inspecting materials for colour, texture, quality and size; and grading mineral products according to specifications.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand inspecting, testing, grading or sampling procedures, and the underlying principles of mineral ore treating, and reasoning ability to make judgments regarding the quality of products and materials; numerical ability to calculate the amount of mineral or metallic ore in samples and computing the moisture content of mineral samples; form perception for 8116-126 COKE INSPECTOR to detect irregularly sized and poorly carbonized coke passing on conveyor, and for 8116-130 MICA CLASSIFIER to detect rough spots and other defects in mica sheets and strips; eye-hand-finger co-ordination and finger dexterity to operate testing equipment and to use measuring instruments such as micrometers and gauges; manual dexterity to handle materials, tools, sampling equipment and measuring instruments; near visual acuity to inspect products and materials for defects, and to read measuring instruments; colour vision to assist in grading mica sheets and strips; capacity to work in conditions of noise, vibration, dusts, fumes and odours, caused by testing and processing operations; adaptability to working in conditions where there is exposure to hazards, such as moving machinery parts and hot materials, in processing areas.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; two months to one year of related experience and on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 8110-114 FOREMAN, INSPECTING, TESTING AND GRADING OCCUPATIONS, MINERAL ORES. See also Chapter 990, FOREMAN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: There are no normal transfer patterns for workers in this chapter, however, with limited additional training, some may transfer to occupations in Chapters 8146, INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, METAL PROCESSING; and 8156, INSPECTING, TESTING AND GRADING OCCUPATIONS: CLAY, GLASS AND STONE PROCESSING AND FORMING.

OCCUPATIONAL TITLES:

8116-110	RADIOMETRIC-COUNTER OPERATOR
8116-114	ORE-SAMPLE TESTER
8116-116	MINERAL SAMPLER
8116-118	IRON-PELLET-HARDNESS TESTER
8116-122	ELECTROLYTIC-CELL CONTROL MAN
8116-126	COKE INSPECTOR
8116-130	MICA CLASSIFIER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	$\underline{4}$	4	$\underline{3}$	4	$\underline{4}$	$\underline{4}$	$\underline{3}$	5	4	L47	I5	3-2	5-3	19	OY2
						3	$\underline{3}$		$\underline{4}$				I367				

8118 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK, MINERAL ORE TREATING

WORK PERFORMED: This chapter includes occupations concerned with labouring and elemental work in the preparation of crude mineral ores for direct use or further processing. The primary worker function includes handling items such as hoses, shovels, hand trucks and hand tools to perform routine tasks. Work activities include: opening and closing values and moving levers to pump tailings from mill or smelter to waste basin or underground reservoir, or to regulate flow of mineral ores to grading screens; cleaning equipment, bins and work areas; loading and unloading materials onto or from freight cars or trucks and shovelling scrap or spillage onto conveyors.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow simple work instructions; eye-hand co-ordination to regulate the flow of materials by turning valves or moving levers; manual dexterity to use tools, shovels and brooms; physical fitness and strength to perform medium to heavy work requiring lifting of materials weighing up to one hundred pounds, and to perform tasks such as dragging water hoses and breaking slag using sledge hammers; agility to stoop and crouch to perform such activities as shovelling spillage and connecting pipes and hoses; ability to work while exposed to loud, steady noises from ore-treating machinery and equipment; capacity to work with wet material, and in damp conditions is required for 8118-110 TAILINGS LABOURER; capacity for working while exposed to dusts, fumes, gases and odours created by ore-treating operations, is required for 8118-114 LABOURER, ORE PROCESSING.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: no specific educational level; from a short demonstration to one month of on-the-job training.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs and advancement is normally to appropriate occupations requiring similar skills in Minor Group 811, MINERAL ORE TREATING OCCUPATIONS.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other labouring and elemental occupations in this chapter, or to occupations that require similar skills in materials processing, for example see Chapter 8148, OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK, METAL PROCESSING.

OCCUPATIONAL TITLES:

8118-110	TAILINGS LABOURER
8118-114	LABOURER, ORE PROCESSING
8118-118	SALT-SCREENING LABOURER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	4	5	H-M34	B457	1	2-1	13	23
		5	4						4								

8131-A METAL, SMELTING, CONVERTING AND REFINING FURNACEMEN

462, 485, 562, 662, 664, 665, 682, 683

WORK PERFORMED: This chapter includes occupations concerned with converting and refining metal, melting metal for casting, and heating metal for rolling, forging and pressing as a stage in the production of semi-finished or finished metal stock or products. Worker functions include: controlling the operation, charging and tapping of furnaces used to produce and process metals and alloys; comparing colour, fluidity and appearance of molten metal to determine progress of operation; manipulating oxygen lances, tongs, ladles, bars and other furnacemens' tools; tending furnaces that reclaim scrap metal; and handling aditives, slag and refractory materials. Work activities include: calculating amounts of materials required for charging; moving controls to start, stop, regulate or tilt equipment that loads, melts or heats materials; observing panelboard indicators and adjusting controls to maintain conditions within specified limits; obtaining metal samples for laboratory analysis; skimming impurities from surface of molten metal; tapping molten metal from furnaces or reduction pots; and shipping solidified slag and metal from furnace walls.

APTITUDES AND CAPACITIES: learning ability to understand and apply metal smelting, converting or refining procedures, and in some occupations, reasoning ability to judge progress of furnace operations; eye-hand co-ordination and manual dexterity to operate furnace equipment and charging-machine controls, and use tools such as tapping bars and tongs; sufficient strength to perform light to heavy work, requiring the manipulation of furnace controls; the lifting of materials, ingots, tools and other items weighing up to one hundred pounds; the breaking up and removal of solidified slag; or the scraping and chipping of materials from furnace and ladle walls; ability to stoop and crouch in order to handle materials, break up slag and use furnace tools; ability to give and receive verbal instructions and information; near visual acuity to observe gauges and recorders, to read pyrometers, and to observe condition of metal; capacity to work while exposed to extreme heat, noise, fumes, odours, dusts and dirty conditions in furnace areas; adaptability to working where there is a variety of hazards, such as exposure to molten metal, gases, falls and strains; spatial perception to control the operation of equipment in which very large amounts of molten metal must be rotated, tilted and poured, often from a remote location; form perception to discern pertinent detail in appearance of molten materials and metal stock; colour discrimination, for example, to determine when to tap furnace by colour-change in molten metal, and to determine quality of molten metal flowing in runners during casting operations.

TRAINING AND ENTRY REQUIREMENTS: eight to eleven years of general education; six months to three years of related experience and on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Advancement for experienced workers is normally to higher skilled occupations within their cluster, or progressively with additional training, to more skilled occupations in other clusters. Those with supervisory potential may advance to 8130-110 FOREMAN, FURNACEMEN, METAL. See also Chapter 990 FOREMEN, OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations within the cluster that require similar skills. With some additional training, transfer may also be to appropriate occupations in Chapters 8115 MELTING AND ROASTING OCCUPATIONS, MINERAL ORES; and 8151 FURNACEMEN AND KILNMEN: CLAY, GLASS AND STONE.

OCCUPATIONAL TITLES:

8131-110 BESSEMER-CONVERTER OPERATOR
8131-114 BLAST-FURNACE OPERATOR
8131-118 OPEN-HEARTH-FURNACE OPERATOR
8131-122 OXYGEN-FURNACE OPERATOR
8131-126 FURNACE OPERATOR
8131-130 SMELTING FURNACE OPERATOR
8131-138 MIXER OPERATOR, MOLTEN METAL
8131-142 HEATER, METAL
8131-146 CUPOLA TENDER
8131-150 ALUMINUM-POWDER MAKER
8131-154 CHARGING-MACHINE OPERATOR
8131-158 KETTLEMAN, LEAD

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	4	3	4	3	L-M4567	I3567	4-3	7-4	91	YO
				4	4	5	4			5	4						

8131-C METAL SMELING, CONVERTING AND REFINING FURNACEMEN 486, 665, 666, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with converting and refining metal, melting metal for casting, and heating metal for rolling, forging and pressing as a stage in the production of semi-finished or finished metal stock or products. Worker functions include: controlling the operation, charging and tapping of furnaces used to produce and process metals and alloys; comparing colour, fluidity and appearance of molten metal to determine progress of operation; manipulating oxygen lances, tongs, ladles, bars and other furnacemens' tools; tending furnaces that reclaim scrap metal; and handling additives, slag and refractory materials. Worker activities include: calculating amounts of materials required for charging; moving controls to start, stop, regulate or tilt equipment that loads, melts or heats materials; observing panelboard indicators and adjusting controls to maintain conditions within specified limits; obtaining metal samples for laboratory analysis; skimming impurities from surface of molten metal; tapping molten metal from furnaces or reduction pots; and chipping solidified slag and metal from furnace walls.

APTITUDES AND CAPACITIES: learning ability to understand and apply metal smelting, converting or refining procedures, and in some occupations, reasoning ability to judge progress of furnace operations; eye-hand co-ordination and manual dexterity to operate furnace equipment and charging-machine controls, and use tools such as tapping bars and tongs; sufficient strength to perform light to heavy work, requiring the manipulation of furnace controls; the lifting of materials, ingots, tools and other items weighing up to one hundred pounds; the breaking up and removal of solidified slag; or the scraping and chipping of material from furnace and ladle walls; ability to stoop and crouch in order to handle materials, break up slag and use furnace tools; ability to give and receive verbal instructions and information; near visual acuity to observe gauges and recorders, to read pyrometers, and to observe condition of metal; capacity to work while exposed to extreme heat, noise, fumes, odours, dusts and dirty conditions in furnace areas; adaptability to working where there is a variety of hazards, such as exposure to molten metal, gases, falls and strains; form perception, for example, to discern pertinent detail in appearance of molten metal in scrap remelting furnace in order to skim impurities from surface.

TRAINING AND ENTRY REQUIREMENTS: six to eight years of general education; one to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for experienced workers is normally to higher skilled occupations within the cluster, or progressively with additional training, to more skilled occupations in other clusters. Those with supervisory potential may advance to 8130-110 FOREMEN, FURNACEMEN, METAL. See also Chapter 990 FOREMEN, OCCUPATIONS for qualifications profiles.

TRANSFER POSSIBILITIES: Workers may transfer to occupations within the cluster that require similar skills. With some additional training, transfer may also be to appropriate occupations in Chapters 8115 MELTING AND ROASTING OCCUPATIONS, MINERAL ORES; and 8151 FURNACEMEN AND KILNMEN: CLAY, GLASS AND STONE.

OCCUPATIONAL TITLES:

8131-178	METAL RECLAIMER	8131-194	BLAST-FURNACE-TAPPER HELPER
8131-182	SCRAP REMELTER	8131-198	HEATER, METAL, HELPER
8131-186	FURNACE-OPERATOR HELPER	8131-202	OPEN-HEARTH-FURNACE WORKER
8131-190	MIXER OPERATOR HELPER, MOLTEN METAL	8131-206	CUPOLA CHARGER
		8131-210	FURNACE CHARGER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5 4	4	4	5 4	4	4	3	5 4	5	M-H3457	I3567	2	3-2	319	23

8133-B METAL HEAT-TREATING OCCUPATIONS 482, 562, 582, 682

WORK PERFORMED: This chapter includes occupations concerned with altering the physical properties of metals or metal objects by heating, cooling or chemically treating to anneal, harden, temper or relieve internal stresses. Worker functions include: operating and controlling metal heat-treating furnaces and quenching equipment; comparing information about workpieces and types of heat treatment required; setting up equipment for specified heat treatment of metal products; and tending furnace equipment and conveyor systems. Work activities include: studying specifications, work orders and charts to obtain information such as temperature of furnace, duration and sequence of treatment, nature of quenching media, and colour and hardness of treated metal; placing metal products on conveyors or into furnaces; adjusting automatic feed and temperature; reading gauges, pyrometers and other indicating devices; and quenching or cooling metal according to the desired treatment.

APTITUDES AND CAPACITIES: learning ability to understand heat-treating methods and the properties of metals, and ability to carry out detailed written or oral instructions; form perception to discern pertinent detail in appearance of parts and materials; eye-hand co-ordination and manual dexterity to operate and adjust equipment controls, and to use tongs when handling heated parts; colour discrimination to determine slight differences in colour of gas flames or heated metal when estimating temperatures; sufficient strength to perform light to medium work requiring the lifting of parts, materials, trays and other items weighing up to fifty pounds; ability to stoop and crouch when picking up articles, and setting up equipment; near-visual acuity to observe dials and gauges, read pyrometers and hardness testers, and examine workpieces for conformance to specifications; capacity to work while exposed to extreme heat, noise, odours and gases from furnaces and nearby equipment; adaptability to working conditions where there is exposure to burns and fumes; spatial perception to visualize internal stresses in metal objects and to make adjustments to regulate operation of heat-treating equipment.

TRAINING AND ENTRY REQUIREMENTS: nine or ten years of general education; and previous experience as a helper or less skilled worker in heat-treating work, and on-the-job training ranging from four months to two years.

ADVANCEMENT POSSIBILITIES: Some workers with additional training, may advance to higher skilled occupations within the cluster, or from this cluster to Cluster A. Others may advance to appropriate occupations requiring similar basic skills in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS. Those with supervisory potential may advance to 8130-114 FOREMAN, HEAT-TREATING OCCUPATIONS, METAL. See also Chapter 990 FOREMEN OCCUPATIONS for qualification profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster, or to appropriate occupations in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8133-114	HEAT TREATER, ALL ROUND	8133-134	CASE HARDENER
8133-122	QUENCHING-UNIT OPERATOR	8133-138	HARDENER
8133-126	ANNEALER	8133-142	TEMPERER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	4	3	4	3	5	4	M347	I3567	3	6-4	91	YO
		3		3						4	3					913	

8133-C METAL HEAT-TREATING OCCUPATIONS 666, 685

WORK PERFORMED: This chapter includes occupations concerned with altering the physical properties of metals or metal objects by heating, cooling or chemically treating to anneal, harden, temper or relieve internal stresses. Worker functions include: operating and controlling metal heat-treating furnaces and quenching equipment; comparing information about workpieces and types of heat treatment required; setting up equipment for specified heat treatment of metal products; and tending furnace equipment and conveyor systems. Work activities include: studying specifications, work orders and charts to obtain information such as temperature of furnace, duration and sequence of treatment, nature of quenching media, and colour and hardness of treated metal; placing metal products on conveyors or into furnaces; adjusting automatic feed and temperature; reading gauges, pyrometers and other indicating devices; and quenching or cooling metal according to the desired treatment.

APTITUDES AND CAPACITIES: learning ability to understand heat-treating methods and the properties of metals, and ability to carry out detailed written or oral instructions; form perception to discern pertinent detail in appearance of parts and materials; eye-hand co-ordination and manual dexterity to operate and adjust equipment controls, and to use tongs when handling heated parts; colour discrimination to determine slight differences in colour of gas flames or heated metal when estimating temperatures; sufficient strength to perform light to medium work requiring the lifting of parts, materials, trays and other items weighing up to fifty pounds; ability to stoop and crouch when picking up articles, and setting up equipment; near-visual acuity to observe dials and gauges, read pyrometers and hardness testers, and examine workpieces for conformance to specifications; capacity to work while exposed to extreme heats, noise, odours and gases from furnaces and nearby equipment; adaptability to working conditions where there is exposure to burns and fumes.

TRAINING AND ENTRY REQUIREMENTS: seven to nine years of general education; and one to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may, with additional training, advance to higher skilled occupations within the cluster, or from Cluster C to B and from B to A. Others may advance to appropriate occupations requiring similar basic skills in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS. Those with supervisory potential may advance to 8130-114 FOREMAN, HEAT-TREATING OCCUPATIONS, METAL. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster, or to appropriate occupations in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8133-146	METAL BLUER	8133-154	INDUCTION-MACHINE TENDER
8133-150	FLAME-HARDENING-MACHINE TENDER	8133-158	JEWELLERY ANNEALER
		8133-162	HEAT-TREATER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	5	4	L-M47	I3567	3-2	3-2	913	23Y
						5	3				3						23

8135-A METAL ROLLING OCCUPATIONS

362, 460, 462, 482, 484, 662, 682, 684

WORK PERFORMED: This chapter includes occupations concerned with shaping, thinning and elongating metal by passing it between smooth surfaces or grooved rotating rolls which exert a continuous compressive force. Worker functions include: operating or tending equipment to roll metal to specified size and shape; manipulating tools to assemble roll stands and tongs to move and guide metal; comparing rolled products to specified standards; and computing draft and roll speed required to reduce metal to specified dimensions. Work activities include: installing aligning and securing rolls, guides, stops and other parts to set up equipment; moving controls to start, stop and regulate rolling operations; observing operations and recording instruments, and making adjustment to maintain conditions within specified limits; guiding hot metal shapes from one set of rolls to another; measuring rolled products for conformance to specifications; and examining them for cracks, pits and other defects.

APTITUDES AND CAPACITIES: learning ability to understand rolling practices and the properties of metal, and to carry out detailed work instructions; spatial perception, especially for operators, to visualize end products and understand the functioning and relationship of component parts in order to set up and adjust metal-rolling equipment; form perception to closely inspect rolled products for defects such as cracks, scratches and pits; eye-hand co-ordination and manual dexterity to operate equipment controls, to use hand tools, and to use tongs or prying bars to manipulate workpieces; sufficient strength to perform light to medium work, requiring the lifting of machine parts, tools and workpieces weighing up to fifty pounds, and the pushing and pulling of levers to operate equipment; ability to stoop and crouch when setting up equipment and lifting workpieces from floor level; capacity to give and receive verbal instructions or information while working against a background of noise; visual acuity, both near and far, to read gauges and meters, to observe the movement of material through rolling mills from a distance to measure rolled product, and to examine products for defects; colour vision, to recognize indicator lights on control panels, and to estimate the temperatures of heated metal; capacity to work while exposed to extreme heat from workpieces and furnaces, noise from rolling equipment, and fumes, odours, dirt and grease; adaptability to working where there is exposure to a variety of hazards, such as hot metal, moving mechanical parts, strains and falls; numerical ability to calculate measurements and speeds quickly and accurately; finger dexterity to operate dials and switches; to use measuring instruments such as micrometers and calipers

TRAINING AND ENTRY REQUIREMENTS: nine to eleven years of general education; previous related experience in other metal rolling occupations such as helpers, catchers or manipulators, and on-the-job training ranging from six months to three years, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Workers may advance progressively, with additional training, to occupations within the cluster that require higher skills. Advancement may also be to appropriate inspecting and testing occupations in Chapter 8146 INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, METAL PROCESSING. Those with supervisory potential may also advance to 8130-134 FOREMEN METAL ROLLING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster, or to other appropriate occupations in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8135-110 ROLLING ATTENDANT
8135-114 HOT-STEEL ROLLER
8135-118 ROLL SETTER
8135-122 ROLLING-MILL OPERATOR
8135-126 ROUGHING-MILL OPERATOR
8135-130 COLD-STEEL ROLLER
8135-134 FINISHER
8135-138 SPEED OPERATOR
8135-142 PIERCING-MILL OPERATOR
8135-146 ROLLER, SEAMLESS TUBE
8135-150 SCREWDOWN OPERATOR
8135-154 STRAIGHTENING-ROLL OPERATOR
8135-158 GUIDE SETTER
8135-160 SCALPING OPERATOR
8135-162 STEAM-CONTROL OPERATOR
8135-164 UTILITY MAN, ROLLING MILL

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	4	$\underline{3}$	$\underline{4}$	$\underline{3}$	5	4	L-M3457	I3567	4-3	7-4	91	Y0
	4	3	4	$\underline{4}$	$\underline{4}$	5			$\underline{4}$	4	5						

8135-B METAL ROLLING OCCUPATIONS 482, 682, 683, 684, 685, 686, 687

WORK PERFORMED: This chapter includes occupations concerned with shaping, thinning and elongating metal by passing it between smooth surfaces or grooved rotating rolls which exert a continuous compressive force. Worker functions include: operating or tending equipment to roll metal to specified size and shape; manipulating tools to assemble roll stands and tongs to move and guide metal; comparing rolled products to specified standards; and computing draft and roll speed required to reduce metal to specified dimensions. Work activities include: installing aligning and securing rolls, guides, stops and other parts to set up equipment; moving controls to start, stop and regulate rolling operations; observing operations and recording instruments, and making adjustments to maintain conditions within specified limits; guiding hot metal shapes from one set of rolls to another; measuring rolled products for conformance to specifications; and examining them for cracks, pits and other defects.

APTITUDES AND CAPACITIES: learning ability to understand rolling practices and the properties of metal, and to carry out detailed work instructions; spatial perception, especially for operators, to visualize end products and understand the functioning and relationship of component parts in order to set up and adjust metal-rolling equipment; form perception to closely inspect rolled products for defects such as cracks, scratches and pits; eye-hand co-ordination and manual dexterity to operate equipment controls, to use hand tools, and to use tongs or prying bars to manipulate workpieces; sufficient strength to perform light to medium work, requiring the lifting of machine parts, tools and workpieces weighing up to fifty pounds, and the pushing and pulling of levers to operate equipment; ability to stoop and crouch when setting up equipment and lifting workpieces from floor level; capacity to give and receive verbal instructions or information while working against a background of noise; visual acuity, both near and far, to read gauges and meters, to observe the movements of materials through rolling mills from a distance, to measure rolled products, and to examine products for defects; colour vision, to recognize indicator lights on control panels, and to estimate the temperatures of heated metal; capacity to work while exposed to extreme heat from work pieces and furnaces, noise from rolling equipment, and fumes, odours, dirt and grease; adaptability to working where there is exposure to a variety of hazards, such as hot metal, moving mechanical parts, strains and falls.

TRAINING AND ENTRY REQUIREMENTS: seven to ten years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may advance progressively, with additional training, to occupations within the cluster that require higher skills, or from this cluster to Cluster A. Advancement may also be to appropriate inspecting and testing occupations in Chapter 8146 INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, METAL PROCESSING. Those with supervisory potential may also advance to 8130-134 FOREMAN, METAL ROLLING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster, or to other appropriate occupations in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8135-166 REELING-MACHINE OPERATOR
8135-170 COILER OPERATOR
8135-174 JEWELLERY STRIP ROLLER
8135-178 MANIPULATOR
8135-182 ROUGHING-TABLE TENDER
8135-186 TUBING-MACHINE TENDER
8135-188 INGOT-BUGGY DRIVER
8135-190 ROLLING-MILL OPERATOR HELPER
8135-194 CATCHER
8135-198 PLUGGER
8135-202 BED TENDER
8135-206 COILER, METAL ROLLING
8135-210 SCALPING HELPER
8135-214 INGOT CLADDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	3	4	3	4	5	L-M47	I3567	3-2	4-3	319	2Y3
			4				4			5							

8137-A MOULDING, COREMAKING AND METAL CASTING OCCUPATIONS 380, 381

WORK PERFORMED: This chapter includes occupations concerned with making moulds and cores, and filling moulds with molten or powdered metal to form ingots, castings and parts of various shapes and sizes. Worker functions include: working precisely to close tolerances when making patterns, moulds or cores by hand; operating or tending a variety of machines and equipment that melt and cast metal; manipulating tools to prepare moulds, cores or casting equipment for use; setting-up die-casting, sand-moulding or core-making machines; and comparing resultant products with drawings and specifications to ensure conformance to standards. Work activities include: forming sand moulds and cores by hand or machine; melting metal in furnaces, kettles or other equipment; casting parts, ingots and other items by pouring molten metal into moulds, or by using casting wheel, die-casting, continuous-casting or centrifugal-casting machines; compressing metallic powders into parts using sintering press; and removing cast items from moulds.

APTITUDES AND CAPACITIES: learning ability to understand characteristics of metal, and to follow sand moulding, coremaking or metal casting instructions; spatial perception to visualize finished parts from drawings and patterns, and to set up machines and equipment to cast parts according to specifications; form perception to examine moulds, cores and castings for conformance to specified standards; eye-hand co-ordination and manual dexterity to operate machine controls, and to use hand tools and measuring instruments; sufficient strength to perform work ranging from light to heavy depending on the job involved; to lift and handle tools, moulds, patterns and castings; and to shovel sand used to make moulds and cores; ability to stoop, couch, or kneel to shovel sand, form sand moulds, and pick up or lay down objects at floor level; near visual acuity to examine and measure moulds, cores and castings, and to read machine gauges; capacity to work in generally unpleasant conditions such as dusts, fumes, odours, machinery noise and extreme heat from furnaces and molten metal; adaptability to working where there are a variety of hazards, such as exposure to molten metal, explosions, lead poisoning or physical strains; finger dexterity to use hand tools and measuring instruments.

TRAINING AND ENTRY REQUIREMENTS: nine to eleven years of general education; an apprenticeship program of from two to four years for 8137-110 PATTERN MOULDER, 8137-114 SAND MOULDER and 8137-126 COREMAKER; one to two years of related experience and on-the-job training for the remaining occupations.

ADVANCEMENT POSSIBILITIES: Experienced workers with potential for supervision, may advance to 8130-138 FOREMAN, MOULDING, COREMAKING AND METAL CASTING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profiles.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster. Transfer may also be to appropriate occupations requiring similar skills and limited additional training in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS, such as 8146-130 SAND TESTER, FOUNDRY, and 8146-138 CASTING INSPECTOR.

OCCUPATIONAL TITLES:

8137-110	PATTERN MOULDER	8137-122	MOULDING-AND-COREMAKING-MACHINES SET-UP MAN
8137-114	SAND MOULDER	8137-126	COREMAKER
8137-118	DIE-CASTING-MACHINE SET-UP MAN	8137-130	MOULDER, BENCH

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	3	3	5	5	L-M347	I3567	4-3	7-6	190	OY
		4	3	2	2	5	4	4		4	4		I67				

8137-B MOULDING, COREMAKING AND METAL CASTING OCCUPATIONS 462, 662, 682

WORK PERFORMED: This chapter includes occupations concerned with making moulds and cores, and filling moulds with molten or powdered metal to form ingots, castings and parts of various shapes and sizes. Worker functions include: working precisely to close tolerances when making patterns, moulds, or cores by hand; operating or tending a variety of machines and equipment that melt and cast metal; manipulating tools to prepare moulds, cores or casting equipment for use; setting-up die-casting, sand-moulding or core-making machines; and comparing resultant products with drawings and specifications to ensure conformance to standards. Work activities include: forming sand moulds and cores by hand or machine; melting metal in furnaces, kettles or other equipment; casting parts, ingots and other items by pouring molten metal into moulds, or by using casting wheel, die-casting, continuous-casting or centrifugal-casting machines; compressing metallic powders into parts using sintering press; and removing cast items from moulds.

APTITUDES AND CAPACITIES: learning ability to understand characteristics of metal, and to follow sand moulding, coremaking or metal casting instructions; spatial perception to visualize finished parts from drawings and patterns, and to set up machines and equipment to cast parts according to specifications; form perception to examine moulds, cores and castings for conformance to specified standards; eye-hand co-ordination and manual dexterity to operate machine controls, and to use hand tools and measuring instruments; sufficient strength to perform work ranging from light to heavy depending on the job involved; to lift and handle tools, moulds, patterns and castings; and to shovel sand used to make moulds and cores; ability to stoop, crouch, or kneel to shovel sand, form sand moulds, and pick up or lay down objects at floor level; near visual acuity to examine and measure moulds, cores and castings, and to read machine gauges; capacity to work in generally unpleasant conditions such as dusts, fumes, odours, machinery noise and extreme heat from furnaces and molten metal; adaptability to working where there are a variety of hazards, such as exposure to molten metal, explosions, lead poisoning or physical strains.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; four months to one year of related experience and on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers may advance to higher skilled occupations within the chapter. Experienced workers with potential for supervision, may advance to 8130-138 FOREMAN, MOULDING, COREMAKING AND METAL CASTING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster. Transfer may also be to appropriate occupations requiring similar skills and limited additional training in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS, such as 8146-130 SAND TESTER, FOUNDRY and 8146-138 CASTING INSPECTOR.

OCCUPATIONAL TITLES:

8137-134	SHOT DROPPER
8137-138	CASTING OPERATOR
8137-142	CONTINUOUS-CASTING-MACHINE OPERATOR
8137-146	MACHINE MOULDER
8137-150	CASTER
8137-154	CASTING-MACHINE OPERATOR, AUTOMATIC
8137-158	CASTING-WHEEL OPERATOR
8137-160	STARTING-SHEET MAKER
8137-162	AMMUNITION CASTER
8137-166	ANODE-PRESS OPERATOR
8137-170	BULLET-SLUG-CASTING MACHINE OPERATOR
8137-174	DIE-CASTING-MACHINE OPERATOR
8137-178	MOULDING-SAND MIXER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	4	5	4	4	3	4	5	M-H47	I3567	3	5-4	139	20Y
	4				3	4	3			5							

8137-C MOULDING, COREMAKING AND METAL CASTING OCCUPATIONS 664, 665, 684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with making moulds and cores, and filling moulds with molten or powdered metal to form ingots, castings and parts of various shapes and sizes. Worker functions include: working precisely to close tolerances when making patterns, moulds or cores by hand; operating or tending a variety of machines and equipment that melt and cast metal; manipulating tools to prepare moulds, cores or casting equipment for use; setting-up die-casting, sand-mould- or core-making machines; and comparing resultant products with drawings and specifications to ensure conformance to standards. Work activities include: forming sand moulds and cores by hand or machine; melting metal in furnaces, kettles or other equipment; casting parts, ingots and other items by pouring molten metal into moulds, or by using casting wheel, die-casting, continuous-casting or centrifugal-casting machines; compressing metallic powders into parts using sintering press; and removing cast items from moulds.

APTITUDES AND CAPACITIES: learning ability to understand characteristics of metal, and to follow sand moulding, coremaking or metal casting instructions; spatial perception to visualize finished parts from drawings and patterns, and to set up machines and equipment to cast parts according to specifications; form perception to examine moulds, cores and castings for conformance to specified standards; eye-hand co-ordination and manual dexterity to operate machine controls, and to use hand tools and measuring instruments; sufficient strength to perform work ranging from light to heavy depending on the job involved; to lift and handle tools, moulds, patterns and castings; and to shovel sand used to make moulds and cores; ability to stoop, crouch or kneel to shovel sand, form sand moulds, and pick up or lay down objects at floor level; near visual acuity to examine and measure moulds, cords and castings, and to read machine gauges; capacity to work in generally unpleasant conditions such as dusts, fumes, odours, machinery noise and extreme heat from furnaces and molten metal; adaptability to working where there are a variety of hazards, such as exposure to molten metal, explosions, lead poisoning or physical strains.

TRAINING AND ENTRY REQUIREMENTS: seven to ten years of general education; one to six months of related experience and on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers may advance to higher skilled occupations within the chapter; for example, from 8137-202 METAL-POURER HELPER to 8137-182 METAL POURER, and from 8137-262 DIE-CASTING-MACHINE TENDER to 8137-118 DIE-CASTING-MACHINE SET-UP MAN. Experienced workers with potential for supervision, may advance to 8130-138 FOREMAN, MOULDING, COREMAKING AND METAL CASTING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster. Transfer may also be to appropriate occupations requiring similar skills and limited additional training in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8137-182 METAL POURER
8137-186 LOST-WAX CASTER
8137-190 MOULD SETTER
8137-194 CENTRIFUGAL-CASTING MACHINE TENDER
8137-198 METAL-FRAME MOULDER
8137-202 METAL-POURER HELPER
8137-206 COREMAKER, PIPE
8137-210 MOULD CLOSER
8137-214 SAND-SLINGER OPERATOR
8137-218 LEAD CASTER, MANUAL
8137-220 NOZZLE-AND-SLEEVE MAN
8137-222 COREMAKER, MACHINE
8137-224 LIME MAN
8137-226 MOULDER, LEAD INGOT
8137-230 RECLAMATION MAN, METAL
8137-234 SINTERING-PRESS TENDER
8137-236 CORE-PIPE EXTRACTOR
8137-238 SOLDER MAKER
8137-240 ABRASIVE-WHEEL BUSHER
8137-242 CASTER HELPER
8137-246 CORE SETTER
8137-250 METAL-FRAME-MOULDER HELPER
8137-254 CORE EXTRUDER
8137-258 CORE-OVEN TENDER
8137-262 DIE-CASTING-MACHINE TENDER
8137-266 SHELL-MOULD BONDER
8137-270 SHELL MOULDER
8137-272 METAL-CHARGE WEIGHER
8137-274 MOULDMAN
8137-278 CASTING-OPERATOR HELPER
8137-282 CASTING-WHEEL-OPERATOR HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	4	5	M-H47	I3567	3-2	4-2	139	23Y
			5		3	4	4			5							

8141-A METAL EXTRUDING AND DRAWING OCCUPATIONS

362, 662

WORK PERFORMED: This chapter includes occupations concerned with drawing and extruding metal into semi-finished or finished products such as bars, tubing, rods, wire and structural sections. Worker functions include: operating and tending, extrusion presses, drawing machines and wire-insulating machines; manipulating tools and equipment to install, align and secure dies, mandrels, guides and other parts in machines; feeding materials into machines and offbearing products; and comparing and measuring finished products with specified standards. Work activities include: moving controls to start, stop and regulate the operation of equipment; and cleaning, lubricating and making minor repairs to equipment.

APTITUDES AND CAPACITIES: learning ability to understand and apply instructions pertaining to metal extruding and drawing operations; form perception to detect deviations from standards in shapes of finished products; eye-hand co-ordination to operate machines and make necessary adjustments; manual dexterity to set up machines, operate controls, and handle parts, tools and work pieces; physical fitness and sufficient strength to perform medium to heavy work, requiring frequent lifting of dies, parts, reels and materials weighing up to fifty pounds, and to use hand tools to install and adjust parts; ability to give and receive verbal instructions or information; near visual acuity and depth perception to set up and adjust machines, and to measure and examine finished products; capacity to work while exposed to loud, steady noises from metal extruding or drawing equipment and other nearby machinery; adaptability to working where there are a variety of physical hazards, such as exposure to hot metal, moving mechanical parts, dusts and fumes; spatial perception to visualize finished products from drawings and specifications; finger dexterity to operate control dials and switches, and to use measuring instruments such as rules, calipers and micrometers.

TRAINING AND ENTRY REQUIREMENTS: nine to ten years of general education; one month to two years of related experience as a helper and on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers may with some additional training, advance to more highly skilled occupations within the cluster. Those with supervisory potential may advance to 8130-126 FOREMAN, METAL EXTRUDING AND DRAWING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profiles.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster. Transfer may also be to appropriate occupations requiring similar skills and limited additional training in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8141-110	METAL-EXTRUDER OPERATOR
8141-114	ROD DRAWER
8141-118	TUBE DRAWER
8141-122	WELDING-ROD-EXTRUDER OPERATOR
8141-126	WIRE DRAWER
8141-130	SHEATHING EXTRUDER
8141-134	METAL POINTER
8141-142	CABLE INSULATOR
8141-146	WELDING-ROD-EXTRUDER TENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	4	3	4	3	4	5	M4567	I567	3	6-3	91	YO
	4						4			5							Y02

8141-B METAL EXTRUDING AND DRAWING OCCUPATIONS 684, 686, 687

WORK PERFORMED: This chapter includes occupations concerned with drawing and extruding metal into semi-finished or finished products such as bars, tubing, rods, wire and structural sections. Worker functions include: operating and tending, extrusion presses, drawing machines and wire-insulating machines; manipulating tools and equipment to install, align and secure dies, mandrels, guides and other parts in machines; feeding materials into machines and offbearing products; and comparing and measuring finished products with specified standards. Work activities include: moving controls to start, stop and regulate the operation of equipment; and cleaning, lubricating and making minor repairs to equipment.

APTITUDES AND CAPACITIES: learning ability to understand and apply instructions pertaining to metal extruding and drawing operations; form perception to detect deviations from standards in shapes of finished products; eye-hand co-ordination to operate machines and make necessary adjustments; manual dexterity to set up machines, operate controls, and handle parts, tools and workpieces; physical fitness and sufficient strength to perform medium to heavy work, requiring frequent lifting of dies, parts, reels and materials weighing up to fifty pounds, and to use hand tools to install and adjust parts; ability to give and receive verbal instructions or information; near visual acuity and depth perception to set up and adjust machines, and to measure and examine finished products; capacity to work while exposed to loud, steady noises form metal extruding or drawing equipment and other nearby machinery; adaptability to working where there are a variety of physical hazards, such as exposure to hot metal, moving mechanical parts, dusts and fumes.

TRAINING AND ENTRY REQUIREMENTS: eight years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may, with some additional training, advance to more highly skilled occupations within their cluster. Helper occupations in Cluster B are considered as entry jobs and advancement normally is to operator or tender occupations in Cluster A. Those who have supervisory potential may advance to 8130-126 FOREMAN, METAL EXTRUDING AND DRAWING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within their respective clusters. Transfer may also be to appropriate occupations requiring similar skills and limited additional training in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8141-138	DRAWER HELPER	8141-158	SHEATHING-EXTRUDER HELPER
8141-150	WIRE-DRAWER HELPER	8141-162	WELDING-ROD-EXTRUDER HELPER
8141-154	METAL-EXTRUDER-OPERATOR HELPER	8141-166	CABLE-INSULATOR HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	4	5	M-H47	I567	2	4-2	139	23Y
			5			5			4	5						13	23

8143-A PLATING, METAL SPRAYING AND RELATED OCCUPATIONS

381, 382, 482, 662, 682

WORK PERFORMED: This chapter includes occupations concerned with applying protective, decorative or other coatings to metal stock or products, by such processes as electroplating, galvanizing, metal spraying or vacuum metallizing. Worker functions include: operating or tending plating or pickling tanks, coating machines, tumbling machines and stray equipment to treat metal surfaces; manipulating tools to install rolls, guides, spray nozzles and other components in equipment; working to close tolerances to ensure objects are coated to required degree; and comparing finished products to specified standards to ensure conformance to specifications. Work activities include: mixing coating solutions or materials; cleaning surfaces of objects or materials prior to coating; placing or feeding articles in processing tanks or equipment; and moving controls to start, stop and regulate processes.

APTITUDES AND CAPACITIES: learning ability to understand metal plating, spraying or related operations, and reasoning ability to make judgments regarding the quality of finished products; form perception to examine finished products for defects; eye-hand co-ordination and manual dexterity to use hand tools and measuring instruments and to operate and adjust equipment; sufficient strength to perform light to medium work requiring the lifting of parts and materials weighing up to fifty pounds; near visual acuity to observe gauges, read measuring instruments and detect imperfections in finished products; colour vision to note subtle differences in shades or tones of coatings; capacity to work while exposed to heat, humidity, odours, dusts and noise resulting from processing operations; adaptability to working conditions in which there are a variety of physical hazards, such as exposure to burns, fumes and moving mechanical parts.

TRAINING AND ENTRY REQUIREMENTS: nine to eleven years of general education; six months to two years of related experience and on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers may advance to more skilled occupations within the cluster. Advancement may be to appropriate inspecting and testing occupations in Chapter 8146 INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, METAL PROCESSING. Those with supervisory potential may advance to 8130-142 FOREMAN, PLATING, METAL SPRAYING AND RELATED OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster or with limited additional training, to other appropriate metal processing occupations in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8143-110	JEWELLERY COVERER
8143-114	ELECTROPLATER, METAL
8143-118	CYLINDER PLATER-GRINDER
8143-122	PICKLER OPERATOR
8143-126	COATER OPERATOR
8143-130	ELECTROGALVANIZER
8143-134	CORROSION-RESISTANT-METAL SPRAYER
8143-138	METAL-SPRAY OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	4	3	5	4	L-M47	I3567	4-3	6-5	91	OY
		4	4	4	2	5		3		4	3						OY1

8143-B PLATING, METAL SPRAYING AND RELATED OCCUPATIONS 484, 485, 684, 685, 686

WORK PERFORMED: This chapter includes occupations concerned with applying protective, decorative or other coatings to metal stock or products, by such processes as elecyroplating, galvanizing, metal spraying or vacuum metallizing. Worker functions include: operating or tending plating or pickling tanks, coating machines, tumbling machines and spray equipment to treat metal surfaces; manipulating tools to install rolls, guides, spray nozzles and other components in equipment; working to close tolerances to ensure objects are coated to required degree; and comparing finished products to specified standards to ensure conformance to specifications. Work activities include: mixing coating solutions or materials; cleaning surfaces of objects or materials prior to coating; placing or feeding articles in processing tanks or equipment; and moving controls to start, stop and regulate processes.

APTITUDES AND CAPACITIES: learning ability to understand metal plating, spraying or related operations, and reasoning ability to make judgments regarding the quality of finished products; form perception to examine finished products for defects; eye-hand co-ordination and manual dexterity to use hand tools and measuring instruments and to operate and adjust equipment; sufficient strength to perform light to medium work requiring the lifting of parts and materials weighing up to fifty pounds; near visual acuity to observe gauges, read measuring instruments and detect imperfections in finished products; colour vision to note subtle differences in shades or tones of coatings; capacity to work while exposed to heat, humidity, odours, dusts and noise resulting from processing operations; adaptability to working conditions in which there are a variety of physical hazards, such as exposure to burns, fumes and moving mechanical parts.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; one to six months of related experience and on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may advance to more skilled occupations within the cluster. Workers may, with some additional training, advance to occupations in A. Other possibilities for advancement may be to appropriate inspecting and testing occupations in Chapter 8146 INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, METAL PROCESSING. Those with supervisory potential may advance to 8130-142 FOREMAN, PLATING, METAL SPRAYING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster, or, with limited additional training, to other appropriate metal processing occupations in Minor Group 813/814 METAL PROCESSING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8143-142 ELECTROLESS PLATER
8143-146 ELECTROPLATER, PHONOGRAPH MATRICES
8143-150 GALVANIZER, HOT DIP
8143-154 SHERARDIZER
8143-158 WIRE-COATING TENDER, METAL
8143-162 ANODIZER
8143-166 ELECTROLYTIC-STRIPPING-TANK TENDER
8143-170 ELECTROPLATER, PRODUCTION
8143-174 FIREARMS FINISHER
8143-178 METAL DIPPER
8143-182 TUMBLING-MACHINE TENDER
8143-184 ELECTRO-FORMER
8143-186 PICKLER-OPERATOR HELPER
8143-190 METAL-SPRAY TENDER
8143-194 VACUUM-METALLIZER TENDER
8143-198 PLATING-ROOM HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	4	4	4	3	5	5	L-M47	I34567	3-2	4-2	913	Y23
	3				4	5	3			4	4						

8146-A INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, METAL PROCESSING

281, 381, 384, 587, 687

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the processing of metals to make semi-finished or finished metal stock and metal products. Worker functions include: compiling data from specifications to determine appropriate inspection or test procedures and equipment; manipulating tools, measuring instruments and testing devices; working to precise tolerances when measuring and testing parts; comparing parts and materials to specified standards; and handling a variety of metal parts and materials such as ingots, rods, extrusions, wire, forgings and castings. Work activities include: measuring performance of metal-processing furnaces; collecting samples of molten metal from each furnace heat; testing products or samples to determine hardness, ductility, tensile strength and other physical characteristics; measuring dimensions of products using rule, micrometers, calipers and guages; and examining products for defects.

APTITUDES AND CAPACITIES: learning ability to understand and apply inspecting, testing, grading or sampling procedures and techniques, and reasoning ability to make judgments regarding the quality of products and materials; form perception to detect defects in finished products; eye-hand co-ordination to operate testing machines and measuring instruments or devices; sufficient strength to perform light to medium work requiring the lifting and handling of parts, materials and equipment weighing up to fifty pounds; near visual acuity to read indicator dials on testing machines and to use precision measuring instruments; capacity to work while exposed to any combination of heat, noise, dust and odours from nearby processing equipment; adaptability to working in conditions in which there are a variety of physical hazards such as exposure to burns, moving mechanical parts and toxic fumes; numerical ability to make calculations and take precision measurements.

TRAINING AND ENTRY REQUIREMENTS: nine to twelve years of general education; five months to four years of experience in related production work or at a junior level of inspecting, testing, grading or sampling and on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers may, with additional training, advance to more skilled occupations within the cluster. Some may advance to the technician level of testing, such as 2117-264 LABORATORY PHYSICAL SCIENCE TECHNICIAN, provided they acquire the necessary qualifications. Those with supervisory potential may advance to 8130-118 FOREMAN, INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, METAL PROCESSING. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster, or, with limited additional training, to appropriate occupations in other chapters, such as 8316-114 INSPECTOR, MACHINE SHOP; and 8336-114 INSPECTOR, METAL FABRICATING. Molten Metal Samplers may possibly transfer to other

OCCUPATIONAL TITLES:

8146-110	HEAT-TREATING INSPECTOR	8146-134	WIRE INSPECTOR
8146-118	TENSILE STRENGTH TESTER, METAL	8146-138	CASTING INSPECTOR
8146-122	COMBUSTION TESTER, FURNACE	8146-142	HARDNESS TESTER, METAL
8146-126	METAL PROCESSING INSPECTOR	8146-146	METAL INSPECTOR
8146-130	SAND TESTER, FOUNDRY	8146-150	TINPLATE INSPECTOR AND GRADER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	3	4	3	3	4	4	3	5	4	L-M47	I3567	4-3	7-4	19	OY
		3	4	3		4	3	3	4		5					193	OY2

8148 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK, METAL PROCESSING 686, 687

WORK PERFORMED: This chapter includes occupations concerned with labouring or elemental work in the processing of metal to make semi-finished or finished metal stock and products. Worker functions include: feeding or offbearing equipment such as conveyors, crushers, blending machines or furnaces; handling moving or carrying scrap metal, additives for alloying, moulding sand, refractory clays and other materials used in processing metal. Work activities include: pushing hand trucks and wheelbarrows; weighing out specified amounts of materials; dumping materials into hoppers of machines; preparing sand cores used in casting metal; skimming dross from furnaces; breaking up slag using sledge hammers; and cleaning castings, work areas and equipment.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow simple work instructions, with few concrete variables from standardized situations; form perception, for some occupations, to detect cracks, dents, scratches and other defects in products; eye-hand co-ordination and manual dexterity to use shovels, brooms, bars and tools, and to move materials, clean products and feed equipment; eye-hand-foot co-ordination to move materials by fork-lift-truck, hand truck or wheelbarrow; sufficient strength to perform medium to heavy work, requiring the lifting of products weighing up to one hundred pounds, the shovelling or dumping of materials, or the breaking-up of slag; ability to stoop, kneel or crouch in order to shovel spillage, clean equipment, to pick up items from floor level or break up slag; capacity to work while exposed to any combination of unpleasant conditions resulting from metal processing operations such as, heat, noise, fumes, odours, dusts and dirt; adaptability to working in conditions in which there are a variety of hazards such as moving machinery parts, burns, crushed fingers or toes when handling heavy objects, and possible physical strains.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: no specific educational requirements; on-the-job training, ranging from a short demonstration up to one month.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs, and advancement is normally to higher skilled occupations for workers who demonstrate ability, interest and initiative.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to occupations in labouring and elemental work found in other chapters, for example, Chapter 8118, OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK, MINERAL ORE TREATING.

OCCUPATIONAL TITLES:

8148-110	LABOURER, ALL-ROUND
8148-114	LABOURER, STEEL PRODUCTION
8148-118	FOUNDRY WORKER
8148-122	BILLET PUSHER
8148-124	CASTING-MACHINE-OPERATOR HELPER
8148-126	POWDERED-METAL MIXER
8148-130	CASTING-HOUSE LABOURER
8148-134	FOUNDRY LABOURER, CORE ROOM
8148-138	FURNACE TAPPER LABOURER
8148-140	INDUSTRIAL-FURNACE CLEANER
8148-142	PRODUCTION HELPER
8148-146	CHARGER HELPER
8148-150	PIG-MACHINE-OPERATOR HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	4	5	M-H347	I3567	2-1	2-1	13	23
			4														

8151-A FURNACEMEN AND KILNMEN: CLAY, GLASS AND STONE 362, 364, 382, 384, 563, 682

WORK PERFORMED: This chapter includes occupations concerned with processing clay, glass, stone, abrasives, asbestos and related non-metallic minerals, through the application of heat, to make products such as porcelain and pottery ware, glass, brick and tiles. Worker functions include: operating, tending or feeding ware into equipment such as furnaces, kilns, ovens and curing chambers; compiling information regarding production requirements; and manipulating fuel valves, switches, draughts, and controls to prepare and position ware for processing. Work activities include: loading or directing the loading of materials, greenware or other items into kilns, furnaces or autoclaves; lighting gas or oil jets to fire kilns; adjusting controls to start, stop and regulate operation of equipment; unloading processed products; and examining them for defects.

APTITUDES AND CAPACITIES: learning ability to understand and apply instructions relating to the operation of equipment such as furnaces, kilns and autoclaves, and ability to judge the quality of processed products; eye-hand co-ordination and manual dexterity to adjust equipment controls and turn valves while monitoring guages and recorders, and to handle parts and materials; capacity to work in conditions of extreme heat, noise, vibration, dusts, fumes and odours caused by processing equipment; adaptability to working in conditions where there are a variety of hazards such as exposure to extreme heat, moving machinery, and broken glass; spatial perception to observe the operation of equipment and direct the arrangement and size of kiln loads, and to carry out furnace and kiln repairs; form perception to detect cracks, warping and other defects in finished products, and to detect deterioration of furnace or kiln linings; colour discrimination for occupations involved in estimating temperature or progress of operations, and detecting product discolouration; sufficient strength to perform light to medium work, requiring the lifting of products and materials weighing up to fifty pounds; near visual acuity to observe equipment guages and to examine finished products for defects.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; four months to four years of related experience and on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers may advance to more highly skilled occupations within the cluster. Those with supervisory potential may advance to 8150-114 FOREMAN, CLAY, GLASS AND STONE FURNACEMEN AND KILNMEN. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster. Transfer may also be to other appropriate occupations in Minor Group 815 CLAY, GLASS AND STONE PROCESSING, FORMING AND RELATED OCCUPATIONS; and Chapters 8115 MELTING AND ROASTING OCCUPATIONS, MINERAL ORES; and 8131 METAL SMELTING, CONVERTING AND REFINING FURNACEMEN.

OCCUPATIONAL TITLES

8151-110	PERIODIC-KILN OPERATOR	8151-198	ROTARY-KILN OPERATOR
8151-114	TUNNEL-KILN OPERATOR	8151-202	ABRASIVES-FURNACE PREPARER
8151-150	GLASS-FURNACE OPERATOR	8151-206	ASBESTOS BOARD CURER
8151-190	CUPOLA OPERATOR	8151-210	ASBESTOS-CEMENT-PIPE CURER
8151-194	ASBESTOS-CEMENT-PRODUCT-AUTOCLAVE OPERATOR	8151-154	WINDSHIELD-AUTOCLAVE OPERATOR
		8151-156	ENAMELLING-FURNACE OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	4	3	4	4	5	4	L-M4567	I3567	3	7-4	91	OY
	4	4								4	5	L-M47					
											3						

8151-B FURNACEMEN AND KILNMEN: CLAY, GLASS AND STONE 385, 685, 686, 687

WORK PERFORMED: This chapter includes occupations concerned with processing clay, glass, stone, abrasives, asbestos and related none-metallic minerals, through the application of heat, to make products such as porcelain and pottery ware, glass, brick and tiles. Worker functions include: operating, tending or feeding ware into equipment such as furnaces, kilns, ovens and curing chambers; compiling information regarding production requirements; and manipulating fuel valves, switches, draughts, and controls to prepare and position ware for processing. Work activities include: loading or directing the loading of materials, greenware or other items into kilns, furnaces or autoclaves; lighting gas or oil jets to fire kilns; adjusting controls to start, stop and regulate operation of equipment; unloading processed products; and examining them for defects.

APTITUDES AND CAPACITIES: learning ability to understand and apply instructions relating to the operation of equipment such as furnaces, kilns, and autoclaves, and ability to judge the quality of processed products; eye-hand co-ordination and manual dexterity to adjust equipment controls and turn valves while monitoring gauges and recorders and to handle parts and materials; capacity to work in conditions of extreme heat, noise, vibration, dusts, fumes and odours caused by processing equipment; adaptability to working in conditions where there are a variety of hazards, such as exposure to extreme heat, moving machinery, and broken glass; sufficient strength to perform light to heavy work, requiring the lifting of products and materials weighing up to one hundred pounds, and the pushing or pulling of hand trucks or kiln cars; agility to climb stairs and ladders and balance on catwalks in order to load and unload products to and from kilns, and to observe furnace or kiln operations; ability to stoop, kneel or crouch when performing such activities as loading products into kilns, sealing up kiln doors with bricks and mortar, lighting gas or oil jets to fire kilns, unsealing kiln doors and removing products.

TRAINING AND ENTRY REQUIREMENTS: seven to ten years of general education; one to six months of related experience and on-the-job training.

ADVANCEMENT POSSIBILITIES: For most occupations, advancement is normally to occupations in Cluster A.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster. Transfer may also be to other appropriate occupations in Minor Group 815 CLAY, GLASS AND STONE PROCESSING, FORMING AND RELATED OCCUPATIONS; and Chapters 8115 MELTING AND ROASTING OCCUPATIONS, MINERAL ORES; and 8131 METAL SMELTING, CONVERTING AND REFINING FURNACEMEN.

OCCUPATIONAL TITLES:

8151-116	HYDROGEN-FURNACE TENDER
8151-158	LEHR TENDER
8151-214	ASBESTOS-CEMENT-PRODUCTS-DRIER TENDER
8151-118	DRYING-MACHINE TENDER
8151-122	PERIODIC-KILN-OPERATOR HELPER
8151-126	SAGGER PACKER
8151-130	KILN SETTER
8151-162	LENS HARDENER
8151-166	OVEN TENDER, FIBREGLASS
8151-218	RETORT TENDER
8151-222	CUPOLA CHARGER
8151-226	ASBESTOS-CEMENT-PIPE-CURER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	3	4	3	5	5	L-H234	I356	3-2	4-2	319	23Y
			5			5	4		4	4							

8153-A SEPARATING, CRUSHING, GRINDING AND MIXING OCCUPATIONS: CLAY, GLASS AND STONE

365, 385, 484, 682, 684

WORK PERFORMED: This chapter includes occupations concerned with separating, sizing or grading clay, glass, stone, abrasives, asbestos or related non-metallic minerals by centrifuging, screening and agitating; crushing materials into smaller particles; and grinding and mixing materials to produce a blended mass. Worker functions include: operating or tending equipment such as crushers, hammer mills and mixing machines; manipulating hand tools and regulating devices when adjusting machines; compiling information for work orders or batches from formulas and specifications; computing amounts of materials to be used; and comparing finished products to specified standards. Work activities include: weighing materials according to specifications; dumping, pouring, pumping or shovelling materials into tanks or machines; breaking up large pieces of materials using bars and sledge hammers; and moving machine controls to start, stop and regulate flow of materials.

APTITUDES AND CAPACITIES: learning ability to understand and apply instructions pertaining to clay, glass, stone or related mineral separating, crushing, grinding or mixing operations; form perception to detect blockages on converyors, to ensure even flow of materials, or to examine size of crushed or milled materials; eye-hand coordination and manual dexterity to regulate processing operations and flow of materials, by adjusting controls and turning valves while monitoring gauges and meters, and to use hand tools and handle materials; sufficient strength to perform light to heavy work requiring the lifting of tools and bags of materials, the shovelling of emery, gravel or clay, or the breaking up of materials using sledge hammers; visual acuity, both near and far, to observe gauges, meters and charts, to read weigh scales, and to observe processing operations from a distance; adaptability to working while exposed to noise, vibrations, dusts, fumes and odours resulting from processing operations.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; three months to two years related experience and on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers may advance to other occupations within the cluster. Those with supervisory potential may advance to 8150-122 FOREMAN, CLAY, GLASS AND STONE SEPARATING, CRUSHING, GRINDING AND MIXING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Experienced workers may transfer to appropriate occupations, requiring similar skills, within the chapter. With limited additional training, transfer may also be to some occupations in Chapters 8111 CRUSHING AND GRINDING OCCUPATIONS, MINERAL ORES; 8113 MIXING, SEPARATING, FILTERING AND RELATED OCCUPATIONS, MINERAL ORES; 8161 MIXING AND BLENDING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS; and 8171 CRUSHING AND GRINDING OCCUPATIONS, CHEMICAL AND RELATED MATERIALS.

OCCUPATIONAL TITLES:

8153-150	ASBESTOS-PIPE-INSULATION MIXER
8153-154	SLURRY-EQUIPMENT OPERATOR
8153-158	BULK-PLANT TENDER
8153-162	GLASS MIXER
8153-110	EMERY-GRADING OPERATOR
8153-174	DIAMOND-POWDER MIXER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	3	4	3	4	4	4	3	4	4	L-H47	I57	3-2	6-3	91	OY
			4		4		3			5	5						

8153-B SEPARATING, CRUSHING, GRINDING AND MIXING OCCUPATIONS: CLAY, GLASS

685, 686

WORK PERFORMED: This chapter includes occupations concerned with separating, sizing or grading clay, glass, stone, abrasives, asbestos or related non-metallic minerals by centrifuging, screening and agitating; crushing materials into smaller particles; and grinding and mixing materials to produce a blended mass. Worker functions include: operating or tending equipment such as crushers, hammer mills and mixing machines; manipulating hand tools and regulating devices when adjusting machines; compiling information for work orders or batches from formulas and specifications; computing amounts of materials to be used; and comparing finished products to specified standards. Work activities include: weighing materials according to specifications; dumping, pouring, pumping or shovelling materials into tanks or machines; breaking up large pieces of material using bars and sledge hammers; and moving machine controls to start, stop and regulate flow of materials.

APTITUDES AND CAPACITIES: learning ability to understand and apply instructions pertaining to clay, glass, stone or related mineral separating, crushing, grinding or mixing operations; form perception to detect blockages on conveyors, to ensure even flow of materials, or to examine size of crushed or milled materials; eye-hand co-ordination and manual dexterity to regulate processing operations and flow of materials, by adjusting controls and turning valves while monitoring gauges and meters, and to use hand tools and handle materials; sufficient strength to perform light to heavy work requiring the lifting of tools and bags of materials, the shovelling of emery, gravel or clay, or the breaking up of materials using sledge hammers; visual acuity, both near and far, to observe gauges, meters and charts, to read weigh scales, and to observe processing operations from a distance; adaptability to working while exposed to noise, vibrations, dusts, fumes and odours resulting from processing operations.

TRAINING AND ENTRY REQUIREMENTS: seven to ten years of general education; one to six months of related experience and on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers may advance to other occupations within the cluster, or from this cluster to Cluster A. Those with supervisory potential may advance to 8150-122 FOREMAN, CLAY, GLASS AND STONE SEPARATING, CRUSHING, GRINDING AND MIXING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Experienced workers may transfer to appropriate occupations, requiring similar skills, within the chapter. With limited additional training, transfer may also be to some occupations in Chapter 8111, CRUSHING AND GRINDING OCCUPATIONS, MINERAL ORES; 8113, MIXING, SEPARATING, FILTERING AND RELATED OCCUPATIONS, MINERAL ORES; 8161, MIXING AND BLENDING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS; and 8171, CRUSHING AND GRINDING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS.

OCCUPATIONAL TITLES:

8153-166	MILL TENDER
8153-170	CEMENT MILLER
8153-178	ABRASIVE MIXER
8153-182	MIXING-MACHINE TENDER, PLASTERBOARD
8153-186	REFRACTORY-MORTAR MIXER
8153-114	CRUSHER TENDER
8153-118	CULLET-CRUSHER TENDER
8153-122	HAMMER-MILL TENDER
8153-126	SCRUBBER TENDER
8153-130	RECLAIMER, ABRASIVES
8153-190	DRY-PRODUCTS MIXER
8153-194	GLAZE MAKER
8153-198	LIME SLAKER
8153-202	MIXER
8153-206	MIXER AND EXTRUDER, MODELLING CLAY

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	5	5	L-H47	I-B57	3-2	4-2	913	Y23
			5			5	3		4	4			I57				

8155A-C FORMING OCCUPATIONS, CLAY

662, 682

WORK PERFORMED: This chapter includes occupations concerned with moulding, casting and extruding clay into products such as bricks, tiles, pottery and porcelain ware, by hand or machine. Worker functions include: setting up, operating and controlling machines that extrude, press or shape clay products; working precisely when handcrafting pottery; manipulating hand tools, gauges and measuring devices; computing machine set-up requirements from product specifications; and comparing finished products for conformance to specifications. Work activities include: installing and adjusting dies, cores, rings and other parts in machines; mixing materials according to formulas; loading materials into machines; moving controls to start, stop and regulate operation of machines; forming handcrafted pottery; trimming and smoothing unfired pottery and attaching handles; and loading products on conveyors or kiln cars preparatory to firing, glazing or drying.

APTITUDES AND CAPACITIES: learning ability to understand and apply clay forming operations and apply the techniques involved; spatial perception to operate and repair clay forming equipment and to visualize finished products from specifications; form perception to detect deviations from standards in materials or products; eye-hand-finger co-ordination, finger and manual dexterity to perform such activities as hand moulding pottery, manipulating work aids, and skilfully using measuring instruments and hand tools; capacity to extend the hands and arms to reach for and handle machine controls, materials and equipment; sufficient strength to perform light to heavy work, depending on the occupation involved, requiring the lifting of machinery parts and clay products, and pushing handtrucks; ability to stoop and kneel as required, to handle parts or products at floor level; ability to give and receive verbal instructions or information; near visual acuity and depth perception in some occupations to read measuring instruments and to examine products for defects; adaptability to working in the presence of noise, dirt, dusts, fumes and odours resulting from processing or forming operations.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; three months to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may advance to other occupations requiring similar skills with the cluster, or to appropriate occupations in Chapter 8156 INSPECTING, TESTING AND GRADING OCCUPATIONS: CLAY, GLASS AND STONE PROCESSING AND FORMING. Experienced workers with supervisory ability and potential may advance to 8150-110 FOREMAN, CLAY, GLASS AND STONE FORMING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer for workers is normally to other occupations within the cluster.

OCCUPATIONAL TITLES:

8155-118	DRY-PRESS OPERATOR
8155-122	JIGGERMAN
8155-126	BRICK-AND-TILE-MAKING MACHINE OPERATOR
8155-130	HOT-PRESS OPERATOR
8155-138	RAM-PRESS OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	3	3	4	5	M-H4567	I57	3	6-4	91	OY
				4	4		4	4									

WORK PERFORMED: This chapter includes occupations concerned with moulding, casting and extruding clay into products such as bricks, tiles, pottery and porcelain ware, by hand or by machine. Worker functions include: setting up, operating, and controlling machines that extrude, press or shape clay products; working precisely when handcrafting pottery; manipulating hand tools, gauges and measuring devices; computing machine set-up requirements from product specifications; and comparing finished products for conformance to specifications. Work activities include: installing and adjusting dies, cores, rings and other parts in machines; mixing materials according to formulas; loading materials into machines; moving controls to start, stop, and regulate operation of machines; forming handcrafted pottery; trimming and smoothing unfired pottery and attaching handles; and loading products on conveyors or kiln cars preparatory to firing, glazing or drying.

APTITUDES AND CAPACITIES: learning ability to understand clay forming operations and apply the techniques involved; spatial perception to operate and repair clay forming equipment and to visualize finished products from specifications; form perception to operate and repair clay forming equipment and to visualize finished products from specifications; form perception to detect deviations from standards in materials or products; eye-hand-finger co-ordination, finger and manual dexterity to perform such activities as hand moulding pottery, manipulating work aids, and skilfully using measuring instruments and hand tools; capacity to extend the hands and arms to reach for and handle machine controls, materials and equipment; sufficient strength to perform light to heavy work, depending on the occupation involved, requiring the lifting of machinery parts and clay products, and pushing handtrucks; ability to stoop and kneel as required, to handle parts or products at floor level; ability to give and receive verbal instructions or information; near visual acuity and depth perception in some occupations to read measuring instruments and to examine products for defects; adaptability to working in the presence of noise, dirt, dusts, fumes and odours resulting from processing or forming operations.

TRAINING AND ENTRY REQUIREMENTS: seven to nine years of general education; one to nine months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may advance to other occupations requiring similar skills within the cluster, or to appropriate occupations in Chapter 8156 INSPECTING, TESTING AND GRADING OCCUPATIONS, CLAY, GLASS AND STONE PROCESSING AND FORMING. Experienced workers with supervisory ability and potential may advance to 8150-110 FOREMAN, CLAY, GLASS AND STONE FORMING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer for workers is normally to other occupations within the cluster.

OCCUPATIONAL TITLES:

8155-134	INSULATOR BUILDER
8155-142	CLAY-STRUCTURE MOULDER AND INSTALLER
8155-144	STOPPER MAKER
8155-146	HAND MOULDER
8155-150	HAND PRESSER
8155-154	SAGGER MOULDER
8155-158	ARTISTIC-OBJECTS CASTER
8155-162	GREENWARE FINISHER
8155-166	JUNCTION MAKER
8155-170	MOULD FILLER
8155-174	POTTERY-AND-PORCELAIN-WARE CASTER
8155-178	SLIP SEALER
8155-182	FLOWERPOT PRESSMAN
8155-186	JIGGERMAN HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4 5	4	4	5 4	4	4	3 4	5 4	5	L-M34	I57	3-2	5-2	139 13	20Y 2Y

8155B-B FORMING OCCUPATIONS, GLASS

360, 362, 380, 662

WORK PERFORMED: This chapter includes occupations concerned with blowing, moulding and drawing molten glass or glass tubing into products such as artistic objects, scientific glass appartus, standard shaped glassware, television picture tubes, flat glass and fibreglass filaments. Worker functions include: synthesizing and interpreting ideas to conceive shapes of artistic objects; analyzing and compiling information to develop scientific apparatus; working to close tolerances to shape, bend or join glass tubing, rods and parts; manipulating glass blowpipe, torches and artisan's hand tools; setting up, operating or tending glass-forming or glass-drawing machines; comparing finished products to specifications; and handling glassware and materials. Work activities include: dipping blowpipe head into furnace to obtain gob of molten glass; shaping gob into semi-finished or final artistic form, or standard shped glassware; heating and shaping glass using glass-blowing lathe and hand tools; installing and adjusting moulds, flow valves, plungers and other parts in glass-forming or drawing machines; starting, stopping and regulating machines that form or draw glass containers, flat glass, filaments or stands of fibreglass and other products from molten glass; and weighing, measuring and examining finished glassware.

APTITUDES AND CAPACITIES: learning ability to understand glass-forming machine operations and to apply the techniques of setting up, operating and repairing this equipment; spatial perception to set up, operate and repair glass-forming or drawing machines, and to envisage the shape of resultant products from specifications; form perception to detect blisters, cracks and other defects in glassware; eye-hand-finger co-ordination, finger and manual dexterity, and the capacity to extend the hands and arms to operate machine controls, handle tools and use measuring instruments; ability to stoop, kneel or crouch as required in order to set up and adjust machines; ability to give and receive verbal instructions or information; visual acuity both near and far, to set up and observe functioning of machines; capacity to work while exposed to extreme heat, noise and odours resulting from glass-forming operations; adaptability to working where there are physical hazards such as exposure to moving mechanical parts, burns and cuts.

TRAINING AND ENTRY REQUIREMENTS: nine to twelve years of general education; on-the-job training and related experience varying from six months to five years depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Some workers may advance to more skilled occupations within the cluster, for example from 8155-238 GLASS-FORMING-MACHINE OPERATOR to 8155-214 GLASS-FORMING-MACHINE SET-UP MAN. Experienced workers who have supervisory ability may advance to 8150-110 FOREMAN, CLAY, GLASS AND STONE FORMING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster. Transfer for experienced workers may also be to occupations in Chapter 8156 INSPECTING, TESTING AND GRADING OCCUPATIONS: CLAY, GLASS AND STONE PROCESSING AND FORMING.

OCCUPATIONAL TITLES:

8155-214	GLASS-FORMING-MACHINE SET-UP MAN
8155-222	SPIN-MOULD-MACHINE SET-UP OPERATOR
8155-238	GLASS-FORMING-MACHINE OPERATOR
8155-250	GLASS-DRAWING-MACHINE OPERATOR
8155-254	YARDAGE CONTROLMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	4	4	$\underline{3}$	$\underline{3}$	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	5	5	L34567	I356	4-3	8-5	91	OY
		3	3	4		3	$\underline{4}$	4	$\underline{4}$		4						

8155C-C FORMING OCCUPATIONS, STONE 462, 464, 662, 664, 682, 684

WORK PERFORMED: This chapter includes occupations concerned with forming mixtures of cementing material and mineral aggregate, abrasives, asbestos and related non-metallic minerals into products such as pipes, tiles, wallboard, blocks, panels and abrasive wheels, by hand or by machine. Worker functions include: setting up, operating or tending machines that form products by moulding, casting, extruding, pressing or rolling materials; working to close tolerances when regulating pressures, flow rates, slurry mixtures, or conveyor speeds of forming equipment; manipulating tools when installing and adjusting mandrels, rollers, cutters and other parts in machines; compiling information from work orders or blueprints; computing set-up requirements; and comparing finished products to specifications. Worker activities include: mixing materials according to formulas; loading materials into machines; moving controls to start, stop and regulate machines; bending and cutting green asbestos-cement pipe by hand, to form elbows of specified radii and lengths; and measuring, weighing and examining finished products.

APTITUDES AND CAPACITIES: to understand and apply instructions pertaining to stone, abrasive, asbestos or related non-metallic mineral forming operations; spatial perception to visualize the size and shape of finished products from drawings and specifications, or to visualize the interrelationship of parts when setting up machines; form perception to detect broken edges, cracks, wrinkles and other defects in formed products; eye-hand-finger co-ordination, manual dexterity, and the capacity to extend the hands and arms, to reach for and handle machine controls, hand tools, parts and materials; sufficient strength to perform light to heavy work, depending on the occupation involved, requiring the manipulation of tools, the lifting of moulds, parts and materials, the pushing of trucks, or the rolling of large cement pipes; capacity to work while exposed to conditions of wetness, noise and vibration resulting from forming operations; adaptability to working where there are physical hazards such as exposure to moving machinery parts, falls, and possible crushed fingers or toes when handling heavy objects; finger dexterity to set dials of machine controls, and to use measuring instruments quickly and accurately.

TRAINING AND ENTRY REQUIREMENTS: eight to nine years of general education; one month to two years of related experience and on-the-job training.

ADVANCEMENT POSSIBILITIES: With experience and some additional training, workers may advance to occupations requiring higher skills within the cluster and also to other clusters. Those with supervisory potential may advance to 8150-110 FOREMAN, CLAY, GLASS AND STONE FORMING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Generally, transfer may be to other occupations requiring similar skills within this chapter. Workers whose occupations concern the operation or setting up of machines may, with limited additional training, transfer to occupations with similar basic requirements in other chapters, for example, some workers may transfer to 8235-122 FORMING-MACHINE OPERATOR, PARTICLE BOARD, or 8155-110 BRICK-MACHINE-SET-UP OPERATOR. Workers may transfer to appropriate occupations in Chapter 8155A FORMING OCCUPATIONS, CLAY that require similar skills.

OCCUPATIONAL TITLES:

8155-322	PLASTERBOARD-MACHINE OPERATOR
8155-326	ASBESTOS-CEMENT-PIPE SPIN FORMER
8155-330	ASBESTOSBOARD-MACHINE OPERATOR
8155-334	ASBESTOS-CEMENT-PIPE-SPIN FORMER HELPER
8155-338	PRECAST-CONCRETE MOULDER
8155-342	PULPSTONE BUILDER
8155-346	ABRASIVE-WHEEL MOULDER
8155-350	INSULATION-MAT-MACHINE OPERATOR
8155-354	CORRUGATED-ASBESTOSBOARD FORMER
8155-358	CONCRETE, SPIN-CAST MAN
8155-362	CONCRETE-FITTINGS MAKER
8155-366	CONCRETE-VAULT MAKER
8155-370	CYLINDER COATER
8155-374	ASBESTOS-CEMENT-INSULATION MOULDER
8155-378	CONCRETE-HYDRAULIC-PRESS OPERATOR
8155-382	ASBESTOS-CEMENT-PIPE BENDER
8155-386	ASBESTOS-CEMENT-PIPE-CORE PULLER
8155-390	LAUNDRY-TUB MAKER
8155-394	PRECAST-TERRAZZO MAKER
8155-398	SCAGLIOLA CASTER
8155-410	ASBESTOS-CEMENT-TILE MAKER

QUALIFICATIONS PROFILE:

APT:	C	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	5	5	L-H347	I456	2	6-2	913	2YO
			5			4	3		4	4							2Y

8156 - INSPECTING, TESTING AND GRADING OCCUPATIONS: CLAY, GLASS AND STONE PROCESSING AND FORMING

382, 384, 387, 584, 664, 684, 687

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the processing and forming of clay, glass, stone, abrasives, asbestos and related non-metallic minerals. Worker functions include: compiling data from specifications to determine inspection or test procedures; comparing results of tests or examination with specified standards; operating testing equipment; and manipulating hand tools, measuring instruments and inspection devices to test or inspect products. Work activities include: weighing or measuring products for conformance to specifications; testing materials or products for such properties as tensile strength, hardness, bursting strength and dielectric strength; and examining finished articles for defects such as cracks, dents and colour variation.

APTITUDES AND CAPACITIES: learning ability to understand and apply inspecting, testing or grading procedures, and to make judgments regarding the quality of products or materials; form perception to examine products for defects or to observe variations in oscilloscope waveforms on sonic tester; clerical perception to correctly interpret work instructions or specification manuals, to prepare inspection and test data, and to maintain accurate and legible records; eye-hand co-ordination to use testing machines, equipment or measuring instruments; manual dexterity to handle products, machine controls or instruments; colour discrimination required for 8156-118 BRICK-AND-TILE TESTER, 8156-134 POTTERY-AND-PORCELAIN-WARE INSPECTOR, 8156-138 LAMINATED-ASBESTOS-PRODUCTS INSPECTOR and 8156-170 ABRASIVE-AND-CLAY-PRODUCTS GRADER when comparing colour of glaze on pattery ware and when grading other products by colour; near visual acuity and depth perception to examine products for defects, and to read gauges, micrometers and other measuring instruments; sufficient strengh to perform light to medium work, such as that of lifting products and equipment, pushing of hand trucks or rolling of large concrete pipe; capacity to work while exposed to noise, fumes, dusts or odours resulting from test or processing equipment.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; previous experience in related production work or junior levels of inspecting and testing, and on-the-job training, varying from one month to two years, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to appropriate occupations in Unit Group 8150 FOREMEN: CLAY, GLASS AND STONE PROCESSING, FORMING AND RELATED OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within this chapter, or to appropriate inspecting, testing or grading occupations in Chapters 8116 INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, ORE TREATING, and 8146 INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, METAL PROCESSING.

OCCUPATIONAL TITLES:

8156-110 ABRASIVE-WHEEL TESTER
8156-114 PIPE TESTER
8156-118 BRICK-AND-TILE TESTER
8156-120 CONCRETE-PRODUCTS TESTER
8156-122 ASBESTOS-FIBRES TESTER
8156-126 FIBREGLASS TESTER
8156-130 CONCRETE-PRODUCTS INSPECTOR
8156-134 POTTERY-AND-PROCELAIN-WARE INSPECTOR
8156-138 LAMINATED-ASBESTOS-PRODUCTS INSPECTOR
8156-142 GLASS-CONTAINERS TESTER
8156-146 QUALITY-CONTROL INSPECTOR, GLASS
8156-150 ABRASIVE-SHEETS INSPECTOR
8156-154 ASBESTOS-SHINGLE INSPECTOR
8156-158 PLASTERBOARD INSPECTOR
8156-162 INSULATOR TESTER
8156-166 FIBREGLASS INSPECTOR
8156-170 ABRASIVE-AND-CLAY-PRODUCTS GRADER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	3	4	4	4	3	4	4	4	3	5	4
	4	3	3	3	4		3		4		5
											3

PA	EC	GED	SVP	INTS.	TEMPS.
L-M47	I57	3-2	6-2	91 913	Y02

8158 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK: CLAY, GLASS AND STONE PROCESSING AND FORMING

686, 687

WORK PERFORMED: This chapter includes occupations concerned with labouring or elemental work in the preparation of clay, glass, stone, abrasives, asbestos and related non-metallic minerals for use in a semi-finished or finished state. Worker functions include: feeding equipment such as shearing machines, mixing machines and presses and offbearing products, and loading or unloading kilns and driers; and handling materials, handtrucks and tools to perform routine tasks. Work activities include: cleaning and finishing glassware, pottery or porcelain ware by hand; examining products for elementary defects; preparing kilns for re-use and building and pulling down kiln doors; heating glassware to remove defects; and cutting sheets of glass to specified lengths.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow simple instructions; form perception to perform such activities as examining bisque ware and glass for defects, and removing defects using sandpaper or gas flame; eye-hand-finger co-ordination and manual dexterity to finish products and to feed machines, use hand tools, tongs, shovels and other devices; capacity to perform work that ranges from light to very heavy, requiring the handling of tools, and the lifting of products and materials, or the shovelling of cement, clay, sand or gravel; capacity to work while exposed to heat, noise, vibration, hot materials, fumes, dusts and odours resulting from processing operations.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: no specific educational requirements; on-the-job training, ranging from a short demonstration to one month.

ADVANCEMENT POSSIBILITIES: These occupations are considered as entry jobs, and advancement is normally to those more skilled occupations in Minor Group 815, CLAY, GLASS AND STONE PROCESSING, FORMING AND RELATED OCCUPATIONS, for which limited training is sufficient.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations in this chapter or to occupations in labouring and elemental work in other chapters.

OCCUPATIONAL TITLES:

8158-110	ASBESTOSBOARD SHEARER
8158-114	CLAY PRESSMAN
8158-118	GLASSWARE FINISHER
8158-122	MIXER HELPER
8158-126	ASBESTOS MOULDER
8158-130	BALCONY MAN
8158-134	BISQUE CLEANER
8158-138	CONCRETE-BLOCK MAKER
8158-142	CYLINDER-FORM ASSEMBLER
8158-146	GLASS-CUT-OFF MAN
8158-150	KILN-DOOR BUILDER
8158-154	KILN LABOURER
8158-158	SPRUE BREAKER
8158-162	ASBESTOS-MOULD STRIPPER
8158-166	ASBESTOS-SHINGLE FLOOR HAND
8158-170	WARE CLEANER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	5	5	4	4	5	4	4	3	5	5	L-VH4	I357	1	2-1	31	23Y
		4	4						4	4							

8161-A MIXING AND BLENDING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS

361, 481, 482, 562, 581, 582, 662, 682

WORK PERFORMED: This chapter includes occupations concerned with mixing and blending chemicals and related materials to produce a single mass or compound, or to achieve quality, texture, colour or other characteristics. Worker functions include: operating or tending mixers or blenders that combine, mingle or fuse chemicals and related materials; maniuplating measuring equipment or special testing devices used in the mixing of dyes, chemicals or paints; and comparing test results with specified standards to ensure quality of products. Work activities include: weighing or measuring ingredients; manually dumping or pouring ingredients into equipment; observing mixing and blending operations; turning valves or moving levers to regulate mixing and blending process; and recording production or test information.

APTITUDES AND CAPACITIES: learning ability to understand the processes of mixing and blending chemicals and to apply the techniques necessary to operate and maintain equipment; numerical ability to calculate weights and proportions of materials required when following or developing formulae; form perception to make visual examinations of ingredients being mixed or blended to detect any abnormal reactions; eye-hand-finger co-ordination when conducting specific gravity, viscosity or other laboratory tests, or when weighing and measuring ingredients; manual dexterity to use hand tools to make minor repairs or adjustments to processing equipment; colour discrimination, at an extremely high level, for 8161-110 COLOUR-MAN, 8161-118 COLOUR MATCHER and 8161-194 MIXER, WALLPAPER COLOUR to distinguish minute differences in shades and colours, and to visualize the hue and brilliance which will result from mixing the primary colours in various proportions; colour discrimination is also required at a lesser degree of aptitude for other occupations in this cluster that are concerned with mixing and blending paints, inks or soaps; physical capacity to perform light to heavy work which may involve lifting and carrying items weighing up to one hundred pounds; near visual acuity to correctly read weigh scales, measuring devices, gauges, dials, charts and thermometers; adaptability to working in unpleasant and, for some occupations, hazardous environmental conditions, such as intermitten noises from mixers or blenders, and fumes, odours or dusts from chemicals.

TRAINING AND ENTRY REQUIREMENTS: ten or more years of general education; from six months to four years of on-the-job training and related experience in occupations of lesser complexity.

ADVANCEMENT POSSIBILITIES: Workers may advance progressively to higher skilled occupations within the cluster. Those who acquire additional training may advance to appropriate technician occupations, such as 2165-218 CHEMICAL-ENGINEERING TECHNICIAN, and 2117-248 CHEMICAL TECHNICIAN. Experienced workers with supervisory potential may advance to 8160-134 FOREMAN, MIXING AND BLENDING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to occupations requiring similar skills within the chapter. With limited additional training, transfer may also be possible to other occupations in Major Group 81/82 PROCESSING OCCUPATIONS, where the work requires similar skill levels.

OCCUPATIONAL TITLES:

8161-110 COLOURMAN
8161-112 BLENDER
8161-114 GREASE MAKER
8161-118 COLOUR MATCHER
8161-122 TINTER
8161-126 SOAP MAKER
8161-130 CATALYST OPERATOR, GASOLINE
8161-134 MAKE-UP MAN
8161-136 ACID MAN, NITROCELLULOSE
8161-138 NITROGLYCERINE-NITRATOR OPERATOR
8161-142 TANNING-SOLUTION MAN
8161-146 BANBURY-MIXER OPERATOR
8161-150 KETTLE OPERATOR
8161-154 WHITE-LEAD MIXER
8161-158 INK MATCHER
8161-162 MIXER OPERATOR
8161-166 WET-EXPLOSIVE MIXER
8161-170 CRUTCHER OPERATOR
8161-174 ORTHOPHOSPHATE-WET-MIX OPERATOR
8161-178 SIZE MAN
8161-182 WOOD-PULP CAUSTIC-LIQUOR MAKER
8161-186 DYE MIXER
8161-190 DRY-EXPLOSIVE MIXER
8161-194 MIXER, WALLPAPER COLOUR
8161-198 PAINT MIXER, HAND

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	4	4	4	4	3	5	5	L-H47	I567	3-2	7-4	91	OY
	4	3	3		3	3	3		4		2						
											1						

8163-A FILTERING, STRAINING AND SEPARATING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS

662, 665, 682

WORK PERFORMED: This chapter includes occupations concerned with filtering, straining and separating chemicals and related materials. Worker functions include: operating or tending equipment that separates, collects, extracts, filters, purifies, recovers, removes, screens or washes chemicals and related substances; and comparing samples of processed material with specified standards. Work activities include: turning valves, starting pumps or conveyors and adjusting controls of equipment to regulate process; transferring materials to storage tanks; recording operating or production data; obtaining product samples; conducting standard tests; and cleaning equipment or work areas.

APTITUDES AND CAPACITIES: learning ability to understand the processes for filtering, straining and separating chemicals and to apply the techniques and procedures necessary to operate or tend processing equipment; form perception to recognize difference in compositional characteristics of processed materials, or to perform titrations or other tests; eye-hand-finger co-ordination, and manual dexterity to replace parts, lubricate equipment, attach hoses, conduct quality tests and adjust valves or controls; physical capacity to perform light to heavy work, such as lifting and carrying filters, couplings and hand tools, or pushing and pulling hand trucks, carts or buggies; near visual acuity to read gauges and instruments, or to detect leaks, clogged orifices, or other equipment and material irregulatities; colour vision to detect colour changes in chemicals to indicate progress of process; adaptability to working in unpleasant and for some occupations, hazardous conditions, such as in proximity to equipment that creates considerable noise, exposure to toxic fumes, and odours or dusts, or handling explosive materials; spatial perception to visualize the functioning of equipment and sequence of processing operations in order to detect equipment malfunctions or material defects.

TRAINING AND ENTRY REQUIREMENTS: ten years of general education; up to two years of on-the-job training and related experience depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Workers may advance to more highly skilled occupations within the chapter. Those who qualify through additional training may advance to 2117-248 CHEMICAL TECHNICIAN, and 5131-150 TECHNICAL SALESMAN, CHEMICALS. Others may advance to quality control occupations, such as 8176-110 CELLULOSE FILM SOLUTIONS,TESTER and 8176-112 TEST ANALYST, TITANIUM PIGMENTS. Experienced workers with supervisory potential may advance to 8160-122 FOREMAN, FILTERING, STRAINING AND SEPARATING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster or to appropriate occupations in other chapters, such as 8179-126 CHEMICAL-PROCESS OPERATOR, BATCHING; 8113-210 SCREENMAN; and 8299-154 SCREEN TENDER.

OCCUPATIONAL TITLES:

8163-110	BITUMEN-EXTRACTION-PLANT OPERATOR
8163-114	FILTER OPERATOR
8163-118	CAUSTIC OPERATOR
8163-122	BENZOL AGITATOR OPERATOR
8163-126	DESULPHURIZER OPERATOR
8163-128	ACIDULATION PLANT TENDER
8163-130	NITROGLYCERINE SEPARATOR
8163-134	ION-EXCHANGE OPERATOR
8163-138	PLASTICS-STRAINER OPERATOR
8163-142	PURIFICATION OPERATOR
8163-146	RECOVERY MAN
8163-150	SETTLER-FILTERER
8163-154	VISCOSE FILTERMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	4	4	4	5	4	L-M47	I-B567	3	6-4	91	YO
	4			4	4				3	4	3					913	

8165-B DISTILLING, SUBLIMING & CARBONIZING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS

685, 687

WORK PERFORMED: This chapter includes occupations concerned with distilling, subliming and carbonizing chemicals and related materials to produce or treat products such as gasoline, lubricating oils and petrochemicals, natural or industrial gases, acids, caustics and other chemicals. Worker functions include: operating or tending equipment such as distillation units, coke ovens, stills, alkylation units, evaporators, absorption towers or fractionating columns; compiling and recording test information and instrument readings; comparing test results with specified standards to detect processing irregularities; and operating coke-oven equipment such as larry-cars or pusher machines. Worker activities include: turning valves, operating pumps or moving levers or switches to start, regulate or stop process; obtaining product samples, conducting tests; patrolling equipment to detect leaks, hazards or malfunctions; and cleaning and lubricating equipment.

APTITUDES AND CAPACITIES: learning ability to understand instructions and follow procedures for tending or helping to operate chemical processing equipment; form perception to detect malfunctioning equipment, compare indicator and gauge readings and perform routine tests; clerical perception to accurately record production data on log sheet; eye-hand-finger co-ordination and manual dexterity to make minor repairs and adjustments using hand tools, to conduct titration, specific gravity and other tests, and to adjust controls; physical capacity to lift and carry objects weighing up to fifty pounds; agility to climb stairs or ladders and walk on platforms or catwalks while monitoring processing operations; adaptability to unpleasant and hazardous environmental conditions, such as working close to pumps, compressors or furnaces that create considerable noise; working with explosive materials; and exposure to chemical fumes, odours and dusts.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; six months to three years of experience and on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may advance to occupations in Cluster A. Experienced workers with supervisory ability may advance to 8160-118 FOREMAN, DISTILLING, SUBLIMING AND CARBONIZING OCCUPATIONS. CHEMICALS AND RELATED MATERIALS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Because of the specialized nature of the work, transfer possibilities are limited, however, some workers may transfer to other occupations requiring similar skills within the chapter.

OCCUPATIONAL TITLES:

8165-210	TREATER HELPER
8165-214	ALKYLATION TOWERMAN
8165-218	BLEACHING-SOLUTION MAKER
8165-222	DISTILLATION-OPERATOR HELPER
8165-226	ACETYLENE-PLANT ATTENDANT
8165-230	CELL-OPERATOR HELPER
8165-240	CRYSTALLIZER TENDER
8165-242	STILL TENDER
8165-244	BATH-MIX-SOLVENT RECOVERER
8165-246	DISTILLATION-OPERATOR HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	4	4	4	3	4	5	L-H247	I-B3567	3-2	4-2	913	2Y8
	3				4				4	5	4						23Y8

8167-B ROASTING, COOKING AND DRYING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS

585, 665, 685

WORK PERFORMED: This chapter includes occupations concerned with roasting, cooking and drying chemicals and related materials to prepare them for subsequent use or further processing. Worker functions include: operating or tending chemical processing equipment to liquefy, dry, char, purify, concentrate, polymerize, or change decomposition of chemical materials; comparing test results with specifications to determine quality of product; and compiling and recording test results and production data. Work activities include: weighing and dumping ingredients into equipment; collecting test samples; conducting specific gravity; acidity or other tests; patrolling area to detect defects in equipment or processing irregularities; performing minor repairs; and cleaning equipment or work areas.

APTITUDES AND CAPACITIES: learning ability to understand chemical roasting, cooking and drying processes, and to carry out detailed written or oral work instructions; form perception to make accurate visual comparisons of materials being processed to detect divergence from specified standards, or to note deviations in gauge or instrument readings which may indicate processing irregularities; eye-hand co-ordination to read gauges or instruments and simultaneously adjust valves or controls; to use measuring devices such as hydrometers or weigh scales; and to fill test containers with samples of processed materials; manual dexterity to conduct tests on product samples or to perform minor maintenance on processing equipment; physical capacity to ascend and descend ladders or stairs, to stoop or bend, push or pull hand trucks and lift and carry various materials, occasionally weighing one hundred pounds; ability to work while exposed to intermittent noise, heat from processing equipment and fumes, odours or dusts.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; up to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Some workers who acquire the necessary experience and training may advance to appropriate occupations in Cluster A.

TRANSFER POSSIBILITIES: Some workers may with limited additional training, transfer to other occupations concerned with operating or tending equipment that requires basically similar skills, such as appropriate occupations in Chapters 8115 MELTING AND ROASTING OCCUPATIONS, MINERAL ORES: and 8151 FURNACEMEN AND KILNMEN: CLAY, GLASS AND STONE.

OCCUPATIONAL TITLES:

8167-146	CARBON-BLACK-FURNACE TENDER
8167-154	CALCINER TENDER
8167-162	ROTARY-FURNACE TENDER
8167-170	CHARCOAL BURNER, BEEHIVE KILN
8167-175	STANDPIPE MAN
8167-234	CADMIUM-LIQUOR MAKER
8167-238	DEVULCANIZER TENDER
8167-242	KETTLE TENDER
8167-274	DRYHOUSE TENDER
8167-278	NITROCELLULOSE-DRIER TENDER
8167-282	SOLVENT-RECOVERY TENDER
8167-334	SPRAY-DRIER TENDER
8167-338	EVAPORATOR TENDER
8167-178	LEAD-OXIDE MAKER
8167-246	ASPHALT-HEATER TENDER
8167-250	RECOVERY-VAT TENDER
8167-286	ASPHALT-PLANT-DRIER TENDER
8167-290	DRIER TENDER
8167-342	FLAKER TENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	3	4	3	5	5	L-M34	I3567	3-2	3-2	913	2Y0
			5				4		4	4							23Y

8171 - CRUSHING AND GRINDING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS

582, 585, 682, 685, 686

WORK PERFORMED: This chapter includes occupations concerned with crushing and grinding chemicals, coal, rubber, plastic, and other related materials. Worker functions include: operating or tending grinders, crushers, pulverizers and machines that cut, chip or shred materials; and comparing processed materials with specified standards to ensure product acceptability. Work activities include: dumping ingredients into and removing them from machines; observing equipment operation to detect stoppages or malfuncations; adjusting control levers and turning valves to regulate rate of feed, temperature, moisture content, or size of particules; weighing ingredients or bags of processed materials; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: learning ability to understand and follow detailed but uninvolved written or oral instructions relating to the operation of crushing and grinding machines; form perception to visually detect differences in size and shape of cut, ground, crushed or chipped material; eye-hand co-ordination to adjust gauges, valves and controls or remove dirt and other foreign material from conveyors; manual dexterity to use hand tools to perform minor adjustments or repairs on machines; colour discrimination essential for 8171-178 HYDRATOR TENDER and 8171-182 PLASTICS GRINDER to determine quality of processed materials; physical capacity to perform light to heavy work, to reach for and handle various objects and materials, and to stoop or bend when inspecting, maintaining or cleaning equipment; near visual acuity for reading gauges, dials or thermometers and performing minor repairs or adjustments to machines; capacity for sustaining attention to functioning machines while exposed to continuous noise from grinders, crushers, conveyors and other machinery; adaptability to working when exposed to fumes, dusts and odours resulting from crushing and grinding chemicals or materials such as coal, paint or limestone, and for some occupations exposure to explosive materials and possible injury.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to other more skilled occupations within this chapter. Those with supervisory potential may advance to 8160-114 FOREMAN, CRUSHING AND GRINDING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Some workers transfer to occupations requiring similar skills within this chapter. With limited additional training, others may transfer to some occupations in Chapters 8111 CRUSHING AND GRINDING OCCUPATIONS, MINERAL ORES; and 8153 SEPARATING, CRUSHING, GRINDING AND MIXING OCCUPATIONS: CLAY, GLASS AND STONE.

OCCUPATIONAL TITLES:

8171-110 PULVERIZER OPERATOR
8171-114 GRINDER OPERATOR
8171-118 COKE GRINDER
8171-122 PULVERIZER
8171-126 PULVERIZING-AND-SIFTING EQUIPMENT TENDER
8171-130 STONE-MILL TENDER
8171-134 WHEEL-MILL TENDER
8171-138 CUTTERMAN
8171-142 GRINDER TENDER
8171-146 BLACK-POWDER GRAINER AND GLAZER
8171-150 DOPE-HOUSE MAN
8171-154 LEAD-OXIDE-MILL TENDER
8171-158 SCRAP-RUBBER GRINDER
8171-162 BREAKER TENDER
8171-166 COLOUR GRINDER
8171-170 CRUSHER TENDER
8171-174 DICING-MACHINE TENDER
8171-178 HYDRATOR TENDER
8171-182 PLASTICS GRINDER
8171-186 SCRATCHER TENDER
8171-190 SHREDDING-MACHINE TENDER
8171-194 RUBBER-CUTTING-MACHINE FEEDER
8171-198 SOAP CHIPPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	5	5	L-H347	I57	3-2	4-2	913	Y2
			5	5	3	4			4	4							Y23

8173-A COATING AND CALENDERING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS

362, 662, 682, 684, 685

WORK PERFORMED: This chapter includes occupations concerned with covering a variety of materials such as paper, cloth, asbestos, felt, and rubber or plastic sheeting with protective, decorative or other coatings; imparting a desired finish or ensuring uniform thickness in materials; and forming or pressing materials into sheets or layers. Worker functions include: operating or tending machines that apply coatings to materials or objects and smooth, glaze, bond, thin or compress, laminate, valcanize or saturate materials in sheet or roll form; feeding and offbearing materials from coating, saturating or calendering machines; and comparing and examining products to detect flaws such as tears, blisters, streaks,or lumps, and ensure acceptability to specifications. Work activities include: mounting rolls of materials on machines; threading materials through feed mechanisms; adjusting controls or valves to regulate temperatures, flow rates for coating solutions and pressure of feed rollers; and measuring thickness of coating or of material produced.

APTITUDES AND CAPACITIES: learning ability to understand and apply the procedures and techniques of operating or tending coating or calendering machines; form perception to visually compare processed materials to detect physical defects such as tears, slits, bubbles or wrinkles; eye-hand-co-ordination to perform such activities as threading sheet material through machine feed mechanisms or operating an over-head hoist to position rolls of material in machine; manual dexterity to use hand tools to adjust and maintain machines or to turn valves and controls to regulate coating or calendering processes; physical strength to perform work ranging from light to heavy, such as lifting and carrying containers of coating solutions, rolls of materials and machinery parts, or pushing and pulling loaded hand trucks; stooping or bending may be necessary; near visual acuity to read gauges, dials, therometers and micrometers, or to detect flaws in products; capacity to work close to curing ovens and calendering machines that generate considerable heat, and to pumps and coating machines that are extremely noisy; adaptability to working where fumes, odours and dusts may present a physical hazard as a result of inhalation or action on the skin; spatial perception to visualize specified thickness of finished product or coating in order to correctly adjust machine parts, such as scraper blades, trimming knives or rollers.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; up to one year of on-the-job training, including experience as a helper, tender or other related production occupation.

ADVANCEMENT POSSIBILITIES: Workers may advance to other occupations within that cluster or to appropriate occupations in Chapter 8176 INSPECTING, TESTING AND SAMPLING OCCUPATIONS: CHEMICAL, PETROLEUM, RUBBER, PLASTIC AND RELATED MATERIALS PROCESSING. Those with supervisory potential may advance to 8160-110 FOREMAN, COATING AND CALENDERING OCCUPATIONS, CHEMICALS AND RELATED MATERIALS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar skills within this chapter. Also, some workers may transfer to appropriate coating and calendering occupations in Chapters 8253 PAPERMAKING AND FINISHING OCCUPATIONS, and 8275 TEXTILE FINISHING AND CALENDERING OCCUPATIONS.

OCCUPATIONAL TITLES:

8173-110 COATING-EQUIPMENT OPERATOR
8173-178 CALENDER OPERATOR
8173-182 CALENDER OPERATOR, MULTI-ROLL
8173-114 LATEX-COATING-MACHINE OPERATOR
8173-186 SPONGE-RANGE OPERATOR
8173-118 COATING-MACHINE TENDER
8173-122 COATER, ASPHALT
8173-190 CALENDER OPERATOR, FLOOR TILE
8173-126 CARBON-COATER-MACHINE OPERATOR
8173-130 PLASTIC-SPREADING-MACHINE OPERATOR
8173-134 RUG-COATING-MACHINE OPERATOR
8173-194 SPONGE-PRESS OPERATOR
8173-198 CALENDER LET-OFF MAN
8173-234 HOSE MAKER, MACHINE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	4	3	5	5	L-M47	I57	3	5-3	91	YO
					4		4						I357			913	

8176-B INSPECTING, TESTING & SAMPLING OCCUPATIONS: PETROLEUM, RUBBER, PLASTIC & RELATED MATERIALS PROCESSING

367, 382, 384, 464

WORK PERFORMED: This chapter includes occupations concerned with quality control activities in the processing of chemicals, petroleum, rubber, plastic and related materials. Worker functions include: compiling and interpreting information resulting from tests to detect processing irregularities; comparing products with specifications to ensure standards are met; manipulating laboratory equipment and special devices to test products for characteristics such as density, abrasion resistance, viscosity, purity or moisture content; recording inspection data; and handling and moving or sorting articles and materials during inspection process. Work activities include: collecting and identifying product samples; preparing test equipment for use; and weighing and measuring materials.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply a variety of written and oral test procedures, and reasoning ability to make judgments regarding quality of products and materials; numerical ability to accurately determine percentages, weights or densities; form perception to examine products for physical defects such as tears, wrinkles or streaks; clerical perception to avoid errors when recording or reviewing test results or other inspection data; eye-hand co-ordination and manual dexterity to use test equipment and measuring devices; physical ability to ascend and descend ladders or stairs and to perform light to heavy work; near visual acuity to examine materials for physical defects and to accurately read dials, instruments and gauges; colour vision for tests which rely on colour indications, such as examining asphalt shingles for colour conformity; capacity to work while exposed to fumes, odours or dusts; ability to stoop or bend when shovelling materials or pushing wheelbarrows.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten years of education; one month to one year of combined on-the-job training and experience.

ADVANCEMENT POSSIBILITIES: Experienced workers in this cluster with supervisory ability may advance to 8160-126 FOREMAN, INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS: CHEMICALS, PETROLEUM, RUBBER, PLASTIC AND RELATED MATERIALS PROCESSING. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Others who acquire the qualifications may advance to occupations such as 5131-150 TECHNICAL SALESMAN, CHEMICALS; 5153-146 SALES REPRESENTATIVE, PLASTIC PRODUCTS; 5133-154 SALES REPRESENTATIVE, RUBBER PRODUCTS; and 2117-248 CHEMICAL TECHNICIAN.

TRANSFER POSSIBILITIES: Because of the specialized nature of the work, transfers are limited but may be to other occupations requiring similar skills within this chapter

OCCUPATIONAL TITLES:

8176-114	TESTER, PLASTIC-MATERIALS
8176-116	CARBON AND GRAPHITE INSPECTOR
8176-122	ASPHALT-ROOFING-MATERIALS INSPECTOR
8176-134	RUBBER TESTER
8176-138	COKE SAMPLER AND TESTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	$\underline{3}$	3	$\underline{3}$	$\underline{3}$	$\underline{3}$	4	$\underline{3}$	5	5	L-H2347	I-7	3	5-3	91	OY
	4	4		4	4	4	$\underline{4}$	3		4	3						

8178 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK: CHEMICALS, PETROLEUM, RUBBER, PLASTIC AND RELATED MATERIALS PROCESSING

666, 667, 686, 687, 866, 867, 886, 887

WORK PERFORMED: This chapter includes occupations concerned with performing labouring and other elemental work in processing chemicals, petroleum, rubber, plastic and related materials. Worker functions include: feeding machines and offbearing materials from machines; and handling, moving, carrying and stacking processed materials. Work activities include: starting and stopping conveyors; shovelling or dumping ingredients into mixers, blenders, kettles or feed hoppers; pushing hand trucks or wheelbarrows loaded with scrap material; removing accumulations of carbon, scale, tar and pitch and other residues from equipment; and cleaning machines and work areas.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow simple instructions to perform a variety of routine tasks; eye-hand co-ordination to use chain hoists to move material or equipment, connect pipes or hoses, or feed materials into or offbear materials from machines; manual dexterity to splice cellulose film or rolls of felt paper, repair metal screens or stencil, paint and label containers; physical capacity to lift and carry containers of chemicals, fibre, paints or dyes weighing up to one hundred pounds, to push or pull hand trucks or wheelbarrows, and to stoop or bend when cleaning equipment or work areas, and when shovelling materials into containers; good vision to read guages and charts and to examine gas cylinders for cracks, dents and burns or roofing felt for tears, holes and splices; adaptability to working when exposed to constant or intermittent noise from calendering machines, mixers, vacuum units and spreader machines, fumes and odours from chemicals or risk of burns from hot asphalt or wax.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight years of general education; on-the-job training, ranging from a short demonstration up to three months duration.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs and advancement for workers who demonstrate ability, interest and initiative is to more highly skilled occupations in Minor Group 816/817 CHEMICALS, PETROLEUM, RUBBER, PLASTIC, AND RELATED MATERIALS PROCESSING OCCUPATIONS.

TRANSFER POSSIBILITIES: It is possible for these workers to transfer to other occupations within the chapter, or to appropriate occupations in labouring and elemental work in other chapters.

OCCUPATIONAL TITLES:

8178-110	LABOURER GENERAL, CHEMCIAL PLANT
8178-114	LABOURER GENERAL, PETROLEUM REFINERY
8178-118	GUIDER
8178-122	STOVE-CARRIAGE MAN
8178-126	STOVE-BOTTOM MAN
8178-130	ELECTRODE CLEANER
8178-134	GASKET COATER
8178-138	RACKMAN
8178-142	REELER
8178-146	SIFTING-MACHINE FEEDER
8178-150	SLUG-PRESS FEEDER
8178-154	SPLICER
8178-158	SPREADER-OPERATOR HELPER
8178-162	BULLET-LUBRICANT MAN
8178-166	COMPRESSED-GAS-PLANT WORKER
8178-170	ELECTROLYTIC-CELL CLEANER
8178-174	PAINT POURER, LINOLEUM
8178-178	WAX-POT TENDER
8178-182	WHARFMAN, COKE PLANT
8178-186	CALENDER FEEDER
8178-190	COATING-MACHINE FEEDER
8178-194	SLASHER HELPER
8178-198	WAX MOULDER
8178-202	LABOURER, PAINT PLANT
8178-206	LUTERMAN
8178-210	SCREEN CLEANER
8178-214	TAR CHASER
8178-218	SCRAP-RUBBER GRINDER AND DUMPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5 4	4	4	5	4 3	4	3 4	4 5	5	M-H347	I567	2-1	2-1	13	23Y

8211-A FLOUR AND GRAIN MILLING OCCUPATIONS

460, 562, 582, 682

WORK PERFORMED: This chapter includes occupations concerned with processing grain and oil seeds to produce flour, starches, animal feed, edible oils, cereals and related products. Worker functions include: controlling equipment and operating or tending machines that clean, separate, crush, grind, mill, blend and sift whole or processed grain, make cornstarch or extract and refine vegetable oils; feeding or dumping grain into machine hoppers; comparing products to specifications to ensure that quality and other standards are met; handling bags of processed grain or feed; and recording production data. Work activities include: adjusting controls to regulate fineness of milled flour or other products, and flow of materials from storage bins; weighing ingredients for animal feeds; taking samples for anaylsis; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply a variety of written and oral technical instructions to set up, operate or tend processing equipment; form perception to visually detect deviations from specified standards in consistency, texture or clarity of processed materials; eye-hand co-ordination to weigh and measure materials, adjust thermostats and valves for controlling pressures and temperatures; or open and close chutes for regulating flow of ingredients; manual dexterity to use hand tools to set up, repair and maintain processing equipment, or to use moisture meters, hydrometers or other measuring instruments in performing quality tests on processed materials; adaptability to working in close proximity to pumps, centrifuges, shakers, mixers, grinders and vibrators that generate considerable noise; and exposure to odours and dusts that may cause physical discomfort and respiratory problems; physical capacity to perform light to medium work, such as lifting and carrying bags of feed and starch weighing up to fifty pounds; to ascend and descend stairs to work at different floor levels of large processing equipment; to stoop or kneel when collecting test samples, repairing or cleaning equipment; to extend the arms and hands when turning valves or operating levers; and to use the fingers when feeling ground products to verify fineness; spatial perception to visualize the characteristics specified for milled grain in order to set up and adjust milling or processing equipment; visual acuity, near and far, to read dials, recording charts, thermometers and other instruments from varying distances.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: nine or ten years of general education; for 8211-110 RICE MILLER, four to eight years of combined experience in related jobs and on-the-job training; for remaining occupations, up to three years of combined experience and on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 8210-122 FOREMAN, FLOUR-AND-GRAIN-MILLING OCCUPATIONS. See also Chapter 990, FOREMAN OCCUPATIONS. for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this cluster are limited, but may be to other occupations within the individual cluster; or to appropriate occupations in Chapter 8226, INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS; or to other food processing occupations such as 8213-162 FLAKING-ROLL TENDER, or 8227-118 COFFEE GRINDER.

OCCUPATIONAL TITLES:

8211-110	RICE MILLER
8211-282	EDIBLE-OIL REFINER
8211-114	MILLER
8211-118	MILLER, CUSTOM-FEED
8211-122	FLAKE MILLER
8211-286	VEGETABLE-OIL EXTRACTOR
8211-214	DRY-STARCH MAKER
8211-290	VEGETABLE-OIL EXTRACTOR SOLVENT PROCESS
8211-126	GRAIN MILLER
8211-130	CEREAL CLEANER
8211-218	DEXTRINE MAKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	4	4	4	4	4	L-M2347	I-567	3	8-4	91	YO
	4	3		4	4				3	5	3						

8211-B FLOUR AND GRAIN MILLING OCCUPATIONS 565, 585, 665, 684, 685

WORK PERFORMED: This chapter includes occupations concerned with processing grain and oil seeds to produce flour, starches, animal feed, edible oils, cereals and related products. Worker functions include: controlling equipment and operating or tending machines that clean, separate, crush, grind, mill, blend and sift whole or processed grain, make cornstarch or extract and refine vegetable oils; feeding or dumping grain into machine hoppers; comparing products to specifications to ensure that quality and other standards are met; handling bags of processed grain or feed; and recording production data. Work activities include: adjusting controls to regulate fineness of milled flour or other products, and flow of materials from storage bins; weighing ingredients for animal feeds; taking samples for analysis; and cleaning equipment and work area.

APTITUDES AND CAPACITIES: Workers in this cluster require : learning ability to understand and apply a variety of written and oral technical instructions to set up, operate or tend processing equipment; form perception to visually detect deviations from specified standards in consistency, texture or clarity of processed materials; eye-hand co-ordination to weigh and measure materials, adjust thermostats and valves for controlling pressures and temperatures; or open and close chutes for regulating flow of ingredients; manual dexterity to use hand tools to set up, repair and maintain processing equipment, or to use moisture meters, hydrometers or other measuring instruments in performing quality tests on processed materials; adaptability to working in close proximity to pumps, centrifuges, shakers, mixers, grinders and vibrators that generate considerable noise; and exposure to odours and dusts that may cause physical discomfort and repiratory problems; physical capacity to perform light to medium work, such as lifting and carrying bags of feed and starch weighing up to fifty pounds; to ascend and descend stairs to work at different floor levels of large processing equipment; to stoop or kneel when collecting test samples, repairing or cleaning equipment; to extend the arms and hands when turning valves or operating levers; and to use the fingers when feeling ground products to verify fineness; spatial perception to visualize the characteristics specified for milled grain in order to set up and adjust milling or processing equipment; visual acuity, near and far, to read dials, recording charts, thermometers and other instruments from varying distances.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; up to one year of combined experience in related jobs and on-the-job training.

ADVANCEMENT POSSIBILITIES: Some workers may advance to appropriate occupations in Cluster A. Experienced workers with supervisory potential may advance to 8210-122 FOREMAN, FLOUR-AND-GRAIN-MILLING OCCUPATIONS. See also Chapter 990, FOREMAN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Transfers are limited, but may be to other occupations within the cluster; or to appropriate occupations in Chapter 8226 INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS; or to other food processing occupations such as 8213-162 FLAKING-ROLL TENDER, or 8227-118 COFFEE GRINDER.

OCCUPATIONAL TITLES:

8211-134	FEED MIXER
8211-222	STEEPMAN
8211-226	STARCH-CENTRIFUGE TENDER
8211-230	DRY-STARCH-MAKER HELPER
8211-234	WHEAT-STARCH MAKER
8211-238	GERM-SEPARATOR
8211-294	WEIGH-TANK TENDER
8211-138	RICE-MILL WORKER
8211-140	GRAIN-SAMPLE MILLER
8211-142	FLOUR BLENDER
8211-146	MASH DRIER
8211-242	MILLER, WET PROCESS
8211-150	FEED GRINDER
8211-154	DRIER TENDER, GRAIN
8211-158	BOLTER
8211-162	GRAIN CLEANER
8211-166	FEED-PRESS MAN
8211-170	FLOUR MIXER
8211-174	GRAIN MIXER
8211-246	NEUTRALIZER
8211-250	STARCH SEPARATOR
8211-254	BREAKERMAN
8211-258	STARCH WASHER
8211-298	CORN-GERM PREPARER
8211-182	FEED BLENDER
8211-190	PELLET-MILL TENDER
8211-262	GLUTEN-SETTLING MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	4	5	L-M247	I-4567	3-1	5-2	913	2Y0
					3	5			4	5	4						2Y3

8211-C FLOUR AND GRAIN MILLING OCCUPATIONS 587, 685, 686

WORK PERFORMED: This chapter includes occupations concerned with processing grain and oil seeds to produce flour, starches, animal feed, edible oils, cereals and related products. Worker functions include: controlling equipment and operating or tending machines that clean, separate, crush, grind, mill, blend and sift whole or processed grain, make corn starch or extract and refine vegatable oils; feeding or dumping grain into machine hoppers; comparing products to specifications to ensure that quality and other standards are met; handling bags of processed grain or feed; and recording product data. Work activities include: adjusting controls to regulate fineness of milled flour or other products, and flow of materials from storage bins; weighing ingredients for animal feeds; taking samples for analysis; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply a variety of written and oral technical instructions to set up, operate or tend processing equipment; form perception to visually detect deviations from specified standards in consistency, texture or clarity of processed materials; eye-hand co-ordination to weigh and measure materials, adjust thermostats and valves for controlling pressures and temperatures, or open and close chutes for regulating flow of ingredients; manual dexterity to use hand tools to set up, repair and maintain processing equipment, or to use moisture meters, hydrometers or other measuring instruments in performing quality tests on processed materials; adaptability to working in close proximity to pumps, centrifuges, shakers, mixers, grinders and vibrators that generate considerable noise; and exposure to odours and dusts that may cause physical discomfort and respiratory problems; physical capacity to perform light to medium work, such as lifting and carrying bags of feed and starch weighing up to fifty pounds; to ascend and descend stairs to work at different floor levels of large processing equipment; to stoop or kneel when collecting test samples, repairing or cleaning equipment; to extend the arms and hands when turning valves or operating levers; and to use the fingers when feeling ground products to verify fineness; physical capacity to perform very heavy work, such as lifting bags of grain and feed weighing in excess of one hundred pounds.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight years of general education; up to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Helpers in this cluster who demonstrate ability, interest and initiative may, with experience and some additional training, advance to the appropriate higher skilled occupations in Clusters A and B.

TRANSFER POSSIBILITIES: Transfer may be to other helper occupations within the cluster, or to appropriate occupations in other chapters.

OCCUPATIONAL TITLES:

8211-178	CUSTOM-FEED-MILL HELPER
8211-186	BOLTER HELPER
8211-194	GRAIN-CLEANER HELPER
8211-302	EDIBLE OIL-REFINER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4 5	4	4	5 4	4	4	3 4	4	5	M-VH34	I-B567	2	3-2	13	23

8213-A BAKING, CONFECTIONERY MAKING AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with making bakery products, dried food pastes such as macaroni, cooked cereals and confectionery products. Worker functions include: operating or tending equipment such as mixers, blenders, roasters, ovens, dividers, depositors and cookers; working to precise standards when measuring and preparing ingredients; manipulating cake and candy decorating devices and kneading dough by hand; comparing appearance, taste or texture of bakery or confectionery goods to ensure conformance to standards; and loading and emptying bakery ovens and candy cookers. Work activities include: adjusting thermostats and turning valves to regulate temperatures of ovens and pressures of cookers; placing trays of candy or bakery goods on conveyors or dollies; dividing dough; mixing and depositing batter; cooking and moulding candy; coating chocolates; roasting nuts; decorating cakes or pastries; cleaning equipment or work areas; and recording production data.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the techniques of decorating cakes and pastries, baking or confectionery making, or operating or tending bakery and confectionery equipment; form perception to make visual inspections during processing in order to determine quality of products and to observe equipment to ensure correct functioning; eye-hand-finger co-ordination to manually decorate cakes or pastries, weigh and mix ingredients, or adjust valves to regulate temperatures or pressure of food processing equipment; finger dexterity to feel products to verify texture, consistency and moisture content, to knead dough and candy, and to manipulate cake and pastry decorating bags; manual dexterity to mix ingredients by hand; measure or weigh ingredients; knead and roll dough; use hand tools to install dies, nozzles or mould boards in equipment; or to manipulate utensils such as nozzles, scoop, brushes or spatulas; physical capacity, depending on the occupation, to perform light to heavy work and to stoop or bend the body or reach the arms when placing items in or removing them from ovens, or shovelling materials into barrels; visual acuity to read thermometers, scales, measuring cups and timers or to examine products to ensure that consistency, colour and shape conform to specifications; numerical ability to perform accurate calculations when measuring and weighing ingredients or when computing production requirements; clerical perception to detect and avoid errors when measuring or weighing ingredients according to recipe requirements; adaptability to working in close proximity to hot ovens which generate considerable heat and create the risk of being burned.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to eleven years of general education; a two to three-year apprenticeship or similar on-the-job training, sometimes supplemented by courses at a community college; completion of examination, dependent upon local requirements.

ADVANCEMENT POSSIBILITIES: Since Bakers may be employed in a variety of commercial bakeries and institutional and industrial establishments, advancement may depend upon their place of employment. Those employed in large establishments who have supervisory potential may advance to 8210-110 FOREMAN, BAKING, CONFECTIONERY-MAKING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Some who acquire knowledge of business practices may become self-employed.

TRANSFER POSSIBILITIES: Transfer possibilities for Bakers are limited.

OCCUPATIONAL TITLES:

8213-114 BAKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	3	4	4	M-34	I-36	3	6	910	90Y1

8213-C BAKING, CONFECTIONERY MAKING AND RELATED OCCUPATIONS 585, 661, 662, 681, 682

WORK PERFORMED: This chapter includes occupations concerned with making bakery products, dried food pastes such as macaroni, cooked cereals and confectionery products. Worker functions include: operating or tending equipment such as mixers, blenders, roasters, ovens, dividers, depositors and cookers; working to precise standards when measuring and preparing ingredients; manipulating cake and candy decorating devices and kneading dough by hand; comparing appearance, taste or texture of bakery or confectionery goods to ensure conformance to standards; and loading and emptying bakery ovens and candy cookers. Work activities include: adjusting thermostats and turning valves to regulate temperatures of ovens and pressures of cookers; placing trays of candy or bakery goods on conveyors or dollies; dividing dough; mixing and depositing batter; cooking and moulding candy; coating chocolates; roasting nuts; decorating cakes or pastries; cleaning equipment or work areas; and recording production data.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the techniques of decorating cakes and pastries, baking or confectionery making, or operating or tending bakery and confectionery equipment; form perception to make visual inspections during processing in order to determine quality of products and to observe equipment to ensure correct functioning; eye-hand-finger co-ordination to manually decorate cakes or pastries, weigh and mix ingredients, or adjust valves to regulate temperatures or pressure of food processing equipment; finger dexterity to feel products to verify texture, consistency and moisture content, to knead dough and candy, and to manipulate cake and pastry decorating bags; manual dexterity to mix ingredients by hand; measure or weigh ingredients; knead and roll dough; use hand tools to install dies, nozzles or mould boards in equipment; or to manipulate utensisl such as nozzles, scoop, brushes or spatulas; physical capacity, depending on the occupation, to perform light to heavy work and to stoop or bend the body or reach the arms when placing items in or removing them from ovens, or shovelling materials into barrels; visual acuity to read thermometers, scales, measuring cups and timers or to examine products to ensure that consistency, colour and shape conform to specifications; spatial perception to visualize the adjustments to equipment and modifications of procedures required to obtain the desired product, either prior to or during the cooking or forming operations; adaptability to unpleasant environmental conditions, such as working close to machines that create considerable noise, and to hazardous conditions, such as handling hot objects and working around operating machinery.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; one month to two years of on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Workers in this cluster may advance to other occupations requiring higher skills. Those with supervisory potential may advance to 8210-110 FOREMAN, BAKING, CONFECTIONERY-MAKING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. With some additional training, some may also advance to 8213-114 BAKER.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations requiring similar skills, mostly within their own cluster. Some workers who mix ingredients, or cook or bake foods in production quantities may transfer to occupations requiring similar basic skills such as in, CHEMICALS, PETROLEUM, RUBBER, PLASTIC AND RELATED MATERIALS PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8213-246	CANDY MAKER
8213-118	CRACKER-AND-COOKIE-MACHINE OPERATOR
8213-126	ROASTER, GRAIN
8213-250	CONFECTIONERY COOKER
8213-262	PANMAN
8213-334	GUN-SHEETING AND SCORING MACHINE OPERATOR
8213-142	OVENMAN
8213-254	ENROBING-MACHINE OPERATOR
8213-130	NOODLE PRESSMAN
8213-134	ALMOND-PASTE MAKER
8213-138	CEREAL-COOKER-AND-EXTRUDER OPERATOR
8213-258	MOULDING-MACHINE OPERATOR
8213-146	GUNNER
8213-338	CONFECTION-SYRUP MAKER
8213-342	NUT-MIXTURE MAKER
8213-350	CHICLE-CENTRIFUGE OPERATOR
8213-266	SPINNER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	3	3	5	4	L-M47	I-56	3-2	7-3	91	OY
	4	3		4	4			4			5						

8213-F BAKING, CONFECTIONERY MAKING AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with making bakery products, dried food pastes such as macaroni, cooked cereals and confectionery products. Worker functions include: operating or tending equipment such as mixers, blenders, roasters, ovens, dividers, depositors and cookers; working to precise standards when measuring and preparing ingredients; manipulating cake and candy decorating devices and kneading dough by hand; comparing appearance, taste or texture of bakery or confectionery goods to ensure conformance to standards; and loading and emptying bakery ovens and candy cookers. Work activities include: adjusting thermostats and turning valves to regulate temperatures of ovens and pressures of cookers; placing trays of candy or bakery goods on conveyors or dollies; dividing dough; mixing and depositing batter; cooking and moulding candy; coating chocolates; roasting nuts; decorating cakes or pastries; cleaning equipment or work areas; and recording production data.

APTITUDES AND CAPACITIES: learning ability to understand and apply the techniques of decorating cakes and pastires, baking or confectionery making, or operating or tending bakery and confectionery equipment; form perception to make visual inspections during processing in order to determine quality of products and to observe equipment to ensure correct functioning; eye-hand-finger co-ordination to manually decorate cakes or pastries, weigh and mix ingredients, or adjust valves to regulate temperatures or pressure of food processing equipment; finger dexterity to feel products to verify texture, consistency and moisture content, to knead dough and candy, and to manipulate cake and pastry decorating bags; manual dexterity to mix ingredients by hand; measure or weigh ingredients; knead and roll dough; use hand tools to install dies, nozzles or mould boards in equipment; or to manipulate utensils such as nozzles, scoop, brushes or spatulas; physical capacity, depending on the occupation, to perform light to heavy work and to stoop or bend the body or reach the arms when palcing items in or removing them from ovens, or shovelling materials into barrels; visual acuity to read thermometers, scales, measuring cups and timers or to examine products to ensure that consistency, colour and shape conform to specifications; spatial perception when operating fork-lift trucks, to observe changing positions of fork in relation to objects or materials, and to judge distances in order to manoeuvre fork under objects; eye-hand-foot co-ordination to operate levers, pedals and steering wheel of fork-lift truck; capacity to endure noise and heat from processing equipment and to work in dusty atmospheric conditions; adaptability to working when exposed to physical hazards such as burns from hot kettles, cookers or tanks, or body injuries from moving conveyors.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; one month to two years of on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Workers in this cluster may advance to other occupations requiring higher skills. Those with supervisory potential may advance to 8210-110 FOREMAN, BAKING, CONFECTIONERY-MAKING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. With some additional training, some may also advance to 8213-114 BAKER.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations requiring similar skills, mostly within their own cluster. Some workers who mix ingredients, or cook or bake foods in production quantities may transfer to occupations requiring similar basic skills, such as in, CHEMICALS, PETROLEUM, RUBBER, PLASTIC AND RELATED MATERIALS PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8213-218	BAKER HELPER	8213-382	CHICLE-GRINDER FEEDER
8213-314	CANDY-MIXER HELPER	8213-386	GUM-SUPPLY MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	3	3	3	4	M-H347	I-356	2	3-2	13	23
						4	4	4		4	5		I-567			139	

8215-A SLAUGHTERING AND MEAT CUTTING, CANNING, CURING AND PACKING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with slaughtering animals and poultry, preparing, preserving and packing meats, and processing edible and inedible by-products. Worker functions include: manipulating knives, cleavers, saws and special tools or devices to stun, slaughter and skin animals; working precisely to cut and saw carcasses and reduce wholesale-size cuts to retail steaks, roasts or chops; tending meat processing equipment such as grinders, mixers, cookers and sausage makers; and handling offal and hides, hanging carcasses and poultry on conveyor hooks, and moving cut meat between processing areas. Work activities include: dehairing hogs; defeathering chickens; cooling and storing meat; removing bones and trimming meat cuts; smoking and curing meat; weighing meats; regulating operation of processing equipment; tagging and identifying carcasses; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: learning ability to understand and apply the techniques of slaughtering and skinning animals and preparing meats for the wholesale or retail trade; spatial perception to visualize animal anatomy in order to cut and prepare carcasses without wasting salable meat; eye-hand-finger co-ordination and manual dexterity to use mechanical devices, knives and other butcher's tools to stun, slaughter and skin animals; physical capacity to perform light to heavy work such as lifting quarters of beef or pushing carcasses along suspended rail; to reach for and handle knives, cleavers and saws; and to stoop or bend while skinning animals or lifting meats; near visual acuity to skin carcasses without cutting or scoring hides, or to cut, slice and fillet meats; adaptability to walking in and out of refrigerated rooms, working in wet and humid areas permeated with meat odors and working with sharp tools that may cause hand or finger injuries; form perception to make visual comparisons of meat portions to ensure conformance to quality and size requirements.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; a two to three-year apprenticeship or similar form of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this cluster may advance to head of a meat department in a large chain store, manager of a smaller specialized meat market, or in a large meat-packing establishment to 8210-142 FOREMAN, SLAUGHTERING-AND-MEAT-PACKING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Those who acquire knowledge of business practices may become owners of their own shops.

TRANSFER POSSIBILITIES: Because of the specialized nature of the occupations in this chapter, transfer would normally be to other occupations within the chapter that require similar basic skills.

OCCUPATIONAL TITLES:

8215-198	BUTCHER
8215-110	BUTCHER, ALL-ROUND

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	4	4	3	3	3	4	4	H-347	I2467	3	7-6	91	OY
		4	5	4		5		4		5	5						

8215-B SLAUGHTERING AND MEAT CUTTING, CANNING, CURING AND PACKING OCCUPATIONS 684, 884

WORK PERFORMED: This chapter includes occupations concerned with slaughtering animals and poultry, preparing, preserving and packing meats, and processing edible and inedible by-products. Worker functions include: manipulating knives, cleavers, saws and special tools or devices to stun, slaughter and skin animals; working precisely to cut and saw carcasses and reduce wholesale-size cuts to retail steaks, roasts or chops; tending meat processing equipment such as grinders, mixers, cookers and sausage makers; and handling offal and hides, hanging carcasses and poultry on conveyor hooks, and moving cut meat between processing areas. Work activities include: dehairing hogs; defeathering chickens; cooling and storing meat; removing bones and trimming meat cuts; smoking and curing meat; weighing meats; regulating operation of processing equipment; tagging and identifying carcasses; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: learning ability to understand and apply the techniques of slaughtering and skinning animals and preparing meats for the wholesale or retail trade; spatial perception to visualize animal anatomy in order to cut and prepare carcasses without wasting salable meat; eye-hand-finger co-ordination and manual dexterity to use mechanical devices, knives and other butcher's tools to stun, slaughter and skin animals; physical capacity to perform light to heavy work such as lifting quarters of beef or pushing carcasses along suspeneded rail; to reach for and handle knives, cleavers and saws; and to stoop or bend while skinning animals or lifting meats; near visual acuity to skin carcasses without cutting or scoring hides, or to cut, slice and fillet meats; adaptability to walking in and out of refrigerated rooms, working in wet and humid areas permeated with meat odors and working with sharp tools that may cause hand or finger injuries; a possible requirement to work close to equipment that generates considerable heat or noise.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; from one month to two years of on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers in this cluster may advance to higher skilled occupations, or to occupations in Cluster A. Those with supervisory potential may advance to 8210-142 FOREMAN, SLAUGHTERING-AND-MEAT-PACKING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of the specialized nature of the occupations in this chapter, transfer would normally be to other occupations within the chapter that require similar basic skills.

OCCUPATIONAL TITLES:

8215-114	MEAT CUTTER
8215-118	SLAUGHTERER, RITUAL
8215-202	SMOKER, MEAT
8215-122	SKINNER, ANIMAL
8215-130	EVISCERATOR, ANIMAL
8215-206	PRE-COOKED-SAUSAGE MAKER
8215-138	ENZYME INJECTOR
8215-126	BONER, MEAT
8215-210	SEWED-CASING MAKER
8215-134	CARCASS SPLITTER
8215-142	STICKER, ANIMAL
8215-214	POULTRY-SPECIALTY BUTCHER
8215-150	HEAD TRIMMER
8215-154	TRIMMER, MEAT
8215-158	VISCERA MAN
8215-230	VACUUM WRAPPER, MEAT
8215-160	STUNNER AND SHACKLER
8215-306	MEAT-MOULD SEALER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	5	5	L-H347	I23467	3-2	6-2	913	2Y
	3		4			4			4	4	4						2Y3

8217-A FISH CANNING, CURING AND PACKING OCCUPATIONS

680, 682

WORK PERFORMED: This chapter includes occupations concerned with preparing, preserving and packing fish and shellfish for use as food, and fish by-products such as oil and fish-meal. Worker functions include: setting up and operating equipment or tending machines that skin, fillet, cut, cook and cool fish, clean and shuck shellfish, cure fish by smoking, or extract fish oil and process fish by-products; manipulating knives and special tools to clean and cut fresh fish and extract meat from shellfish by hand; and comparing fish and fish by-products to specified standards. Work activities include: wrapping and packing fish, shellfish and fish cakes; adjusting controls to regulate flow of water, steam or smoke to processing equipment; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: learning ability to understand and apply the techniques of processing seafood by hand or machine; form perception to make visual comparisons of fish and fish by-products to ensure appearance, size and texture conform to prescribed standards; eye-hand co-ordination to clean and fillet fish or to remove edible meat from shellfish; manual dexterity to use hand tools to set up and maintain equipment or to wrap and pack fish or fish by-products; sufficient strength to perform light to heavy work, requiring the lifting of machinery parts, boxes of fish or bags of fish meal; physical capacity to stoop or bend when maintaining equipment, packing containers, or loading machinery; adaptability to work in areas that are wet, humid, noisy and odorous and capacity to use filleting knives that present a risk of finger or hand injury; spatial perception required for 8217-110 FISH-CUTTING-MACHINE SETTER in order to visualize arrangement and functioning of machine parts, represented by diagrams in maintenance and repair manuals; finger dexterity to perform maintenance work on machines; agility for 8217-112 FISH-BY-PRODUCTS PROCESSOR to climb on and around processing equipment.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; one year of on-the-job training and up to two years related experience; for 8217-112 FISH-BY-PRODUCTS PROCESSOR, six months combined on-the-job training and experience.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory and technical ability may advance to 8210-118 FOREMAN, FISH-CANNING, CURING-AND-PACKING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be possible to appropriate occupations in other chapters requiring similar skills.

OCCUPATIONAL TITLES:

8217-110 FISH-CUTTING-MACHINE SETTER   8217-112 FISH-BY-PRODUCTS PROCESSOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	4	4	3	3	5	4	M34	I4567	2	5-4	91	Y0
					4			4			5	M24					Y02

8217-B FISH CANNING, CURING AND PACKING OCCUPATIONS 585, 684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with preparing, preserving and packing fish and shellfish for use as food, and fish by-products such as oil and fish-meal. Worker functions include: setting up and operating equipment or tending machines that skin, fillet, cut, cook and cool fish, clean and shuck shellfish, cure fish by smoking, or extract fish oil and process fish by-products; manipulating knives and special tools to clean and cut fresh fish and extract meat from shellfish by hand; and comparing fish and fish by-products to specified standards. Work activities include: wrapping and packing fish, shellfish and fish cakes; adjusting controls to regulate flow of water, steam or smoke to processing equipment; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: learning ability to understand and apply the techniques of processing seafood by hand or machine; form perception to make visual comparisons of fish and fish by-products to ensure appearance, size and texture conform to prescribed standards; eye-hand co-ordination to clean and fillet fish or to remove edible meat from shellfish; manual dexterity to use hand tools to set up and maintain equipment or to wrap and pack fish or fish by-products; sufficient strength to perform light to heavy work, requiring the lifting of machinery parts, boxes of fish or bags of fish meal; physical capacity to stoop or bend when maintaining equipment, packing containers, or loading machinery; adaptability to work in areas that are wet, humid, noisy and odorous, and capacity to use filleting knives that present a risk of finger or hand injury; colour discrimination for occupation 8217-114 FISH SMOKER to determine quality of cured fish and for 8217-150 FISH-EGG PROCESSOR to sort fish eggs.

TRAINING AND ENTRY REQUIREMENTS: up to eight years of general education; two weeks to six months of on-the-job training and experience, depending on the occupation.

ADVANCEMENT POSSIBILITIES: With experience and some additional training, workers may advance to higher skilled occupations within this cluster or in Cluster A.

TRANSFER POSSIBILITIES: Transfers are normally to other occupations requiring similar skills within this cluster, but may also be possible to occupations in other chapters involving similar equipment, such as driers, centrifuges or grinders.

OCCUPATIONAL TITLES:

8217-114 FISH SMOKER
8217-118 FISH-PRODUCTS MAKER
8217-122 CENTRIFUGE TENDER
8217-126 SHELLFISH-PROCESSING-MACHINE TENDER
8217-130 FISH CLEANER AND CUTTER
8217-134 SHELLFISH PROCESSOR, HAND
8217-136 BASKET-FILTER TENDER
8217-138 DRIER-AND-GRINDER TENDER
8217-142 FISH-CAKE MAKER
8217-146 SHELLFISH-SEPARATOR
8217-150 FISH-EGG PROCESSOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	5	5	L-H34	I4567	2	4-2	139	23Y
			5							4	4						
											3						

8221 - FRUIT & VEGETABLE CANNING, PRESERVING & PACKING OCCUPATIONS 485, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with canning, preserving and packing fruit and vegetables. The primary worker function is tending equipment to wash, peel, mix, blend, cook, cool, dehydrate, freeze or pickle fruit and vegetables. Work activities include: weighing and measuring ingredients; dumping fruit and vegetables into vats or tanks, adding preservatives and removing processed foods; starting and stopping conveyors to carry produce from one processing area to another; setting timers and machine controls; and washing and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow written and oral instructions and apply the procedures for tending equipment to process fruits and vegetables; form perception to make visual comparisons of fruit and vegetables being prepared or preserved to detect deviations from specified standards; eye-hand co-ordination to remove sub-standard products or foreign materials from moving conveyors, or to turn valves and push levers on equipment; manual dexterity when using scales or other devices to weigh and measure ingredients, or using portable mixer or wooden paddle to stir or blend solutions; physical capacity to lift and carry bags of sugar and salt, boxes of fruit and tubs of vegetables weighing up to fifty pounds; capacity to reach for and handle various objects and materials, and to feel and finger products to verify acceptability; good vision to examine food passing on conveyors and detect processing irregularities; colour vision for occupations where colur is an essential characteristic in determining product quality; capacity to adapt to working in wet and humid environmental conditions in areas where steam and water are used extensively, and adaptability to hazards such as moving equipment or using sharp knives to cut fruit or vegetables.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; one to four months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter with supervisory potential may advance to 8210-126 FOREMAN, FRUIT-AND-VEGETABLE-CANNING, PRESERVING-AND-PACKING OCCUPATIONS. See also Chapter 990, FOREMAN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Most workers in this chapter are concerned with tending specialized food-processing equipment and skills acquired are not readily transferable, however, with limited additional training, transfer may be to some occupations in Group 8229, FOOD, BEVERAGE AND RELATED PROCESSING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

8221-110	CANDIED-FRUIT PROCESSOR
8221-114	MINCEMEAT MAKER
8221-118	FREEZE-DRY-FOOD PROCESSOR
8221-122	VEGETABLE PICKLER
8221-126	BLANCHING-MACHINE TENDER
8221-130	LYE-PEEL TENDER
8221-134	VEGETABLE DRIER TENDER
8221-138	FOOD-COOLING-PAN TENDER
8221-142	BRINE-TANK-SEPARATOR
8221-144	DUMPING-MACHINE TENDER
8221-146	POTATO-PEELING-MACHINE TENDER
8221-150	BULK FILLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	5	5	L-M47	I46	3-2	4-2	319	23Y
			5			5	3	3	4	4	4						

8223-B MILK PROCESSING AND RELATED OCCUPATIONS

462, 562, 582, 682

WORK PERFORMED: This chapter includes occupations concerned with processing raw milk and cream to make dairy products such as pasteurized milk, cream, butter, cheese and ice-cream. Worker functions include: operating or tending milk processing and dairy equipment such as pasteurizers, homogenizers, separators, churns, mixers, coolers and freezers; manipulating hand tools and connecting pipes to prepare equipment for use; dumping ingredients into and removing products from processing equipment; computing amounts of ingredients for batches of dairy products; comparing samples of processed dairy food with specified standards; and handling items such as milk cans, butter, cheeses and ice-cream cartons. Work activities include: adjusting valves, pumps and temperature controls to regulate processes; weighing and measuring ingredients; conducting tests such as determining butter fat content of milk; recording production or test data; and cleaning equipment or work areas.

APTITUDES AND CAPACITIES: learning ability to understand and apply the procedures for operating dairy products processing equipment; spatial perception to visualize processing operations and to adjust controls to process products most efficiently; form perception to make visual comparisons of processed products to ensure firmness, texture, consistency or purity conform to standards; eye-hand-finger co-ordination to read gauges and instruments and simultaneously adjust controls, connect pipes or fittings, or weigh and measure a variety of ingredients or products; manual and finger dexterity to perform quality tests on product samples, or to use hand tools to prepare and assemble processing equipment; physical capacity to perform light to heavy work such as lifting milk cans, sacks of sugar or cartons of butter, and to stoop to inspect equipment or stack containers on pallets; capacity to work in wet and damp work areas, in proximity to pasteurizers and dryers that generate considerable heat, and vacuum units and mixers that create considerable noise; capacity to work while exposed to physical hazards, such as working around moving parts on machinery, or handling strong cleaning or sterilizing solutions.

TRAINING AND ENTRY REQUIREMENTS: ten years of general education; six months to two years of combined experience in related occupations and on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may advance to more highly skilled occupations within this cluster. Those involved in cheese processing may, with some additional training, advance to 8223-194 PROCESS-CHEESE FORMULATOR. Experienced workers with supervisory potential may advance to 8210-138 FOREMAN, MILK PROCESSING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialized nature of the work performed, transfer possibilities for workers are normally limited to other occupations requiring similar skills within the chapter.

OCCUPATIONAL TITLES:

8223-110 MILK-PROCESSING EQUIPMENT OPERATOR
8223-114 SPECIALTY-PRODUCTS MAKER
8223-118 BUTTER MAKER
8223-158 ICE-CREAM MAKER
8223-198 CHEESE MAKER
8223-122 DRIER OPERATOR
8223-202 COTTAGE-CHEESE MAKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	3	3	5	4	L-H347	I3456	3	6-4	91	0Y9
			3	4	4		4	4		4	5						

8223-D MILK PROCESSING AND RELATED OCCUPATIONS

565, 584, 685

WORK PERFORMED: This chapter includes occupations concerned with processing raw milk and cream to make dairy products such as pasteurized milk, cream, butter, cheese and ice-cream. Worker functions include: operating or tending milk processing and dairy equipment such as pasteurizers, homogenizers, separators, churns, mixers, coolers and freezers; manipulating hand tools and connecting pipes to prepare equipment for use; dumping ingredients into and removing products from processing equipment; computing amounts of ingredients for batches of dairy products; comparing samples of processed dairy foods with specified standards; and handling items such as milk cans, butter, cheeses and ice-cream cartons. Work activities include: adjusting valves, pumps and temperature controls to regulate processes; weighing and measuring ingredients; conducting tests such as determining butter fat content of milk; recording production or test data; and cleaning equipment or work areas.

APTITUDES AND CAPACITIES: learning ability to understand the procedure for tending dairy equipment and to follow uncomplicated written or oral instructions; form perception to make visual comparisons of dairy products to ensure texture, body, consistency and viscosity conform to specifications; eye-hand co-ordination when clearing blockages or stoppages from processing machines, when positioning mould pans under filling spouts or when using scales to weigh ingredients or products; manual dexterity to use hand tools to prepare machines or equipment, to use knives to trim mould or sediment from cheese, or to use testing apparatus to test product samples; adaptability to work in locations which are subject to noise, moisture and odours.

TRAINING AND ENTRY REQUIREMENTS: Workers may advance to more skilled occupations in Cluster B. Those with supervisory potential may advance to 8210-138 FOREMAN, MILK PROCESSING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

ADVANCEMENT POSSIBILITIES: Experienced workers may advance to more skilled occupations in Cluster B. Those with supervisory potential may advance to 8210-138 FOREMAN, MILK PROCESSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialized nature of the work performed, transfer possibilities for workers are normally limited to other occupations requiring similar skills within the chapter.

OCCUPATIONAL TITLES:

8223-166 FROZEN-STICK-NOVELTY MAKER	8223-126 MILK AND CREAM RECEIVER
8223-206 CHEESE-MAKER HELPER	8223-130 CANNED-MILK STERILIZER
8223-210 COOKER, PROCESS CHEESE	8223-218 CHEESE CUTTER
8223-170 ICE-CREAM-NOVELTY MAKER	8223-222 GRATED-CHEESE MAKER
8223-214 SLICED-CHEESE MAKER	8223-134 MILK-POWDER GRINDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	4	4	L-M47	I4567	3-2	4-2	913	2Y3
			5		3				4	5	5						2Y0

8223-E MILK PROCESSING AND RELATED OCCUPATIONS

585, 686

WORK PERFORMED: This chapter includes occupations concerned with processing raw milk and cream to make dairy products such as pasteurized milk, cream, butter, cheese and ice-cream. Worker functions include: operating or tending milk processing and dairy equipment such as pasteurizers, homogenizers, separators; churns, mixers coolers and freezers; manipulating hand tools and connecting pipes to prepare equipment for use; dumping ingredients into and removing products from processing equipment; computing amounts of ingredients for batches of dairy products; comparing samples of processed dairy foods with specified standards; and handling items such as milk cans, butter, cheeses and ice-cream cartons. Work activities include: adjusting valves, pumps and temperature controls to regulate processes; weighing and measuring ingredients; conducting tests such as determining butter fat content of milk; recording production or test data; and cleaning equipment or work areas.

APTITUDES AND CAPACITIES: learning ability to understand simple instructions and apply them when performing a variety of uncomplicated tasks; form perception to make visual comparisons when cutting cheese blocks into equal portions or cutting butter or cottage cheese into squares; eye-hand co-ordination to feed carton-forming machine, weigh ingredients or products or to position empty containers under hopper or filler head; manual dexterity to use hand tools, cut cheese or butter with knives or wrap cheese in foil; physical capacity to perform medium to heavy work; capacity to work in refrigerated areas is a requirement for some occupations.

TRAINING AND ENTRY REQUIREMENTS: eight years of general education; on-the-job training ranging from a short demonstration up to one month.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs and advancement is normally to more highly skilled occupations for workers who demonstrate ability, interest and initiative.

TRANSFER POSSIBILITIES: Because of specialized nature of the work performed, transfer possibilities for workers are normally limited to other occupations requiring similar skills within the chapter.

OCCUPATIONAL TITLES:

8223-138 DAIRY HELPER

8223-174 ICE-CREAM WORKER

8223-226 CHEESE-FACTORY WORKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	$\underline{4}$	4	$\underline{4}$	4	$\underline{3}$	4	4	M-H234	I2456	2	2	319	23Y
			5			5					5						

8225-A SUGAR PROCESSING AND RELATED OCCUPATIONS

382, 482, 582, 682

WORK PERFORMED: This chapter includes occupations concerned with extracting, refining and processing sugar, molasses and sugar by-products from materials such as raw-cane sugar,beets and corn. Worker functions include: operating or tending sugar processing equipment such as diffusers, presses, centrifuges, driers, kilns, mixers, filters, converters, crystallizers or evaporators. Work activities include: starting pumps, opening valves and setting temperature controls to regulate sugar refining processes, monitoring control panels to detect irregularities and making adjustments; obtaining samples of sugar solutions and crystallized sugar for testing; conducting pH and other routine processing tests; reactivating char used to filter sugar liquors; recording production data; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: learning ability to understand sugar extracting and refining processes and to apply them when operating or tending processing equipment; form perception to make visual comparisons of material being processed in order to detect irregularities; eye-hand co-ordination and manual dexterity to read gauges or instruments and simultaneously adjust controls or valves, to control quality tests on product samples, or to use hand tools to prepare processing equipment; physical capacity to perform light to medium work; near visual acuity to read meters, gauges or instruments; capacity to work while exposed to noise from pumps, diffusers, agitators or shakers and in wet and humid areas; adaptability to hazardous conditions, such as working around sharp cutting knives, or in areas where risk of explosion exists; spatial perception to control a mass flow balance of ingredients to maintain desired effect in a variety of extracting and refining processes.

TRAINING AND ENTRY REQUIREMENTS: nine to ten years of general education; six months to one year combined experience in jobs of a lesser complexity and on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 8210-146 FOREMAN, SUGAR-PROCESSING AND RELATED OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile. With some additional training, advancement may also be to 8226-110 FOOD TESTER and 8226-130 SUGAR TESTER

TRANSFER POSSIBILITIES: Because of the specialized nature of the work, transfer possibilities for workers are normally to appropriate occupations within the chapter requiring similar skills. However, with limited additional training, transfer may also be to other appropriate occupations in Minor Group 821/822 FOOD, BEVERAGE AND RELATED PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8225-110 CORN-SUGAR-REFINERY OPERATOR
8225-114 CARBONATION MAN
8225-118 DIFFUSER OPERATOR
8225-122 LIQUID-SUGAR OPERATOR
8225-126 SUGAR BOILER
8225-130 CORN-SUGAR-CRYSTALLIZER OPERATOR
8225-134 CORN-SUGAR-FILTER OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	4	4	4	4	5	5	L47	I56	3	5-4	91	0Y
		3		3	4				3		4						

8225-B SUGAR PROCESSING AND RELATED OCCUPATIONS 565, 585, 664, 665, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with extracting, refining and processing sugar, molasses and sugar by-products from materials such as raw-cane sugar, sugar beets and corn. Worker functions include: operating or tending sugar processing equipment such as diffusers, presses, centrifuges, driers, kilns, mixers, filters, converters, crystallizers or evaporators. Work activities include: starting pumps, opening valves and setting temperature controls to regulate sugar refining processes; monitoring control panels to detect irregularities and making adjustments; obtaining samples of sugar solutions and crystallized sugar for testing; conducting pH and other routine processing tests; reactivating char used to filter sugar liquors; recording production data; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: learning ability to understand sugar extracting and refining processes and to apply them when operating or tending processing equipment; form perception to make visual comparisons of material being processed in order to detect irregularities; eye-hand co-ordination and manual dexterity to read gauges or instruments and simultaneously adjust controls or valves, to control quality tests on product samples, or to use hand tools to prepare processing equipment; physical capacity to perform light to medium work; near visual acuity to read meters, gauges or instruments; capacity to work while exposed to noise from pumps, diffusers, agitators or shakers and in wet and humid areas; adaptability to hazardous conditions, such as working around sharp cutting knives, or in areas where risk of explosion exists.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; one week to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With experienced and some additional training, workers may advance to more skilled occupations within the cluster or in Cluster A. Those with supervisory potential may advance to 8210-146 FOREMAN, SUGAR-PROCESSING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile. Some occupations are considered as entry jobs and advancement is usually to higher skilled occupations within the cluster.

TRANSFER POSSIBILITIES: Because of the specialized nature of the work, transfer possibilities for workers are normally to appropriate occupations within the chapter requiring similar skills. However, with limited additional training, transfer may also be to other appropriate occupations in Minor Group 821/822 FOOD, BEVERAGE AND RELATED PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8225-136 KNIFE SETTER
8225-138 LIQUOR-GALLERY TENDER
8225-142 MELTER TENDER
8225-146 CRYSTALLIZER TENDER
8225-150 FIREMAN, CHAR-KILN
8225-152 STARCH CONVERTER
8225-154 CENTRIFUGAL-STATION TENDER, AUTOMATIC
8225-158 CLARIFYING-EQUIPMENT TENDER
8225-162 PULP-DRIER FIREMAN
8225-166 SOFT-SUGAR MAKER
8225-170 CHAR-FILTER TENDER
8225-174 GRANULATOR TENDER
8225-178 BEET-PULP-PRESS TENDER
8225-182 CENTRIFUGAL TENDER
8225-186 CORN-SUGAR-SYRUP COOLER AND DECOLOURIZER
8225-190 POLISHING-FILTER TENDER
8225-192 GLUCOSE-TRANSFER MAN
8225-194 TANKMAN
8225-198 BEET WASHER
8225-202 FLUMER
8225-206 CUBE-MACHINE TENDER
8225-210 ICING-SUGAR-MILL TENDER
8225-214 MINGLER TENDER
8225-218 SCREENING-MACHINE TENDER
8225-222 SUGAR-CHIPPER-MACHINE TENDER
8225-226 SUGAR GRINDER
8225-230 SUGAR PRESSER
8225-234 LIQUOR-GALLERY-TENDER HELPER
8225-238 CHAR-FILTER-TENDER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4 3	4 5	4	4	3 4	5	5	L-M46	I456	3-2	4-2	913	2Y 2Y3

8226-C INSPECTING, TESTING, GRADING & SAMPLING OCCUPATIONS: FOOD, BEVERAGE AND RELATED PROCESSING

381, 481, 484

WORK PERFORMED: This chapter includes occupations concerned with quality control activities in food and beverage processing. Worker functions include: working precisely to perform tests on food ingredients and finished products and ensure compliance with specified standards; compiling information to determine test procedures; analyzing test results; computing factors such as moisture, salinity, sugar content and percentages of ingredients in processed foods and beverages; comparing appearance, taste, smell or feel of foods and beverages; manipulating test equipment controls and devices such as scales, hydrometers, thermometers and magnifying glasses; and handling test samples and rejected items from food processing lines. Work activities include: collecting samples of raw materials or finished products; weighing packaged foods; and preparing report, graphs and charts relative to inspection procedures.

APTITUDES AND CAPACITIES: learning ability to understand and apply a variety of test procedures and to interpret specifications and inspection data related to food and beverage testing; numerical ability to make accurate arithmetical computations when measuring samples for mineral, protein, fat, acid and moisture content; form perception to make visual comparisons during quality tests to ensure that physical properties conform to standards; clerical perception to avoid errors when preparing graphs or charts or recording test results; eye-hand co-ordination and finger dexterity to use microscopes, gauges, micrometers, calculating machines or other equipment; manual dexterity to perform acidity, specific gravity, contamination or other quality tests; colour discimination to examine samples for discolouration, or to accurately read colorimeter and spectophotometer indications; near visual acuity to read graduations on measuring or weighing devices and to examine food and beverages quickly and accurately.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education, preferably with emphasis on biology, chemistry and mathematics.

ADVANCEMENT POSSIBILITIES: Some workers may advance to occupations requiring higher skills within this chapter. Those who acquire the necessary additional training may advance to 2135-166 FOOD TECHNOLOGIST. Experienced workers who have supervisory potential and have acquired extensive knowledge of quality control activities may advance to 8210-130 FOREMAN, INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS: FOOD, BEVERAGE AND RELATED PROCESSING, or to other appropriate foreman occupations in Unit Group 8210 FOREMEN: FOOD, BEVERAGE AND RELATED PROCESSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profiles.

TRANSFER POSSIBILITIES: Occupations in this chapter are of a specialized nature and transfer possibilities are usually limited to other occupations concerned with a particular food or beverage product. Some workers whose occupation requires only limited training may transfer to similar occupations within the chapter.

OCCUPATIONAL TITLES:

8226-110 FOOD TESTER
8226-198 BEER TESTER
8226-238 TESTER, FEED
8226-202 QUALITY-CONTROL TESTER, BEER-BOTTLING LINE
8226-206 WINE TESTER
8226-242 BUTTERFAT TESTER
8226-246 STARCH TESTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	3	3	3	3	3	5	3	L47	I	4-3	6-4	917	YO
				3		4		4								91	

8226-D INSPECTING, TESTING, GRADING & SAMPLING OCCUPATIONS: FOOD, BEVERAGE AND RELATED PROCESSING

664, 681, 684

WORK PERFORMED: This chapter includes occupations concerned with quality control activities in food and beverage processing. Worker functions include: working precisely to perform tests on food ingredients and finished products and ensure compliance with specified standards; compiling information to determine test procedures; analyzing test results; computing factors such as moisture, salinity, sugar content and percentages of ingredients in processed foods and beverages; comparing appearance, taste, smell or feel of foods and beverages; manipulating test equipment controls and devices such as scales, hydrometers, thermometers and magnifying glasses; and handling test samples and rejected items from food processing lines. Work activities include: collecting samples of raw materials or finished products; weighing packaged foods; and preparing reports, graphs and charts relative to inspection procedures.

APTITUDES AND CAPACITIES: learning ability to understand and apply inspecting and testing procedures and reasonsing ability to make judgments regarding quality of product; form perception to recognize differences in physical characteristics, such as size, clarity, deterioration and weight; eye-hand co-ordination and manual dexterity to use test equipment and measuring devices and to conduct quality tests on food and beverage samples; colour discimination to detect differences in colour when comparing product with colour chart; sufficient strength to lift and carry bags of sugar and cases of liquor weighing up to fifty pounds; near visual acuity to read graduations on measuring or weighing devices and to examine food and beverages quickly and accurately.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; on-the-job training ranging from a short demonstration to two years, depending on the complexity of the quality control activity.

ADVANCEMENT POSSIBILITIES: Some workers may advance to occupations requiring higher skills within this chapter. Those who acquire the necessary additional training may advance to 2135-166 FOOD TECHNOLOGIST. Experienced workers who have supervisory potential and have acquired extensive knowledge of quality control activities may advance to 8210-130 FOREMAN, INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS: FOOD, BEVERAGE AND RELATED PROCESSING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profiles.

TRANSFER POSSIBILITIES: Occupations in this chapter are of a specialized nature and and transfer possibilities are usually limited to other occupations concerned with a particular food or beverage product. Some workers whose occupation requires only limited training may transfer to similar occupations within the chapter.

OCCUPATIONAL TITLES:

8226-122 QUALITY-CONTROL INSPECTOR
8226-210 LIQUOR TESTER
8226-130 SUGAR TESTER
8226-134 HONEY GRADER AND BLENDER
8226-154 COOKIE AND CRACKER TESTER
8226-258 CAN INSPECTOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	3	4	4	4	3	5	3	L-M47	I	3-2	5-3	19	YO
	4	4	4		4	3	3		4		4					193	

8226-E INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS: FOOD, BEVERAGE AND RELATED PROCESSING

485, 587, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with quality control activities in food and beverage processing. Worker functions include: working precisely to perform tests on food ingredients and finished products and ensure compliance with specified standards; compiling information to determine test procedures; analyzing test results; computing factors such as moisture, salinity, sugar content and percentages of ingredients in processed foods and beverages; comparing appearance, taste, smell or feel of foods and beverages; manipulating test equipment controls and devices such as scales, hydrometers, thermometers and magnifying glasses; and handling test samples and rejected items from food processing lines. Work activities include: collecting samples of raw materials or finished products; weighing packaged foods; and preparing reports, graphs and charts relative to inspection procedures.

APTITUDES AND CAPACITIES: learning ability to understand and apply a variety of routine inspecting, testing, grading and sampling procedures; form perception to recognize product defects such as surface blemishes on cheese, unremoved fins on fish, or bruised meats; eye-hand co-ordination to fill containers, remove articles from conveyors or package food products; manual dexterity to use hand tools or utensils to adjust equipment or trim meats; colour discrimination to ensure meats, cheese, fruits, vegetables, cereals and candy meet colour standards; physical capacity to perform light to medium work, such as lifting and carrying bags of seed corn, blocks of cheese, or cases of butter, and to finger and feel products to verify texture, firmness, size, shape and coarseness; adaptability to working in wet humid conditions, particularily in meat, poultry and fish processing establishments; near visual acuity to read graduations on measuring or weighing devices and to examine food and beverages quickly and accurately.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; on-the-job training ranging from a short demonstration to two years, depending on the complexity of the quality control activity.

ADVANCEMENT POSSIBILITIES: Some workers may advance to occupations requiring higher skills within this chapter. Those who acquire the necessary additional training may advance to 2135-166 FOOD TECHNOLOGIST. Experienced workers who have supervisory potential and have acquired extensive knowledge of quality control activities may advance to 8210-130 FOREMAN, INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS: FOOD, BEVERAGE AND RELATED PROCESSING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Occupations in this chapter are of a specialized nature and transfer possibilities are usually limited to other occupations concerned with a particular food or beverage product. Some workers whose occupation requires only limited training may transfer to similar occupations within the chapter.

OCCUPATIONAL TITLES:

8226-118 GRADER, MEAT
8226-126 GRADER, FRUIT AND VEGETABLES
8226-138 GRAIN INSPECTOR
8226-250 GRADER, SEED CORN
8226-142 CHEESE GRADER
8226-254 CASING GRADER
8226-146 KOSHER INSPECTOR
8226-150 TENDEROMETER TENDER
8226-158 GRADER, FISH
8226-160 GRADER, SLICED BACON
8296-150T GRAIN SAMPLER
8226-262 INSPECTOR, FOOD PACKAGING
8226-162 CANDY INSPECTOR
8226-166 GRADER, DRESSED POULTRY
8226-170 GRADER, GREEN MEAT
8226-174 INSPECTOR, CANNED FOOD
8226-214 BEVERAGE AND BOTTLE INSPECTOR
8226-264 SAMPLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3 4	4 5	4 3	4	3 4	5	3 4 5	L-M47	I4	3-2	6-2	13	2Y

8227-A BEVERAGE PROCESSING OCCUPATIONS 382, 582, 682

WORK PERFORMED: This chapter includes occupations concerned with processing beverage products such as coffee, tea, fruit juices, soft drinks, beer, wine and liquor. Worker functions include: operating and tending beverage processing equipment to crush, mix, grind, roast, cook or extract ingredients, and to malt, ferment, brew, carbonate, pasteurize, blend or distill beverages; and comparing beverage products and results of processing tests with specified standards. Work activities include: weighing ingredients or products; monitoring processing operations; moving switches, adjusting temperature or pressure controls, or turning valves to start machines or processing equipment; examining products; obtaining samples and conducting routine tests; recording data; performing minor maintenance to precessing equipment; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: learning ability to understand and apply the procedures and techniques required to operate or tend beverage processing equipment and reasoning ability to diagnose processing irregularities; form perception to make visual comparisons of materials during processing operations to detect divergence from specified standards; eye-hand co-ordination to read gauges and simultaneously turn valves or controls, or to use scales to weigh tea, ground coffee, milled grain or barrels of wine; manual dexterity to use hand tools to prepare and maintain equipment, or to use test apparatus to conduct quality tests on product samples; physical capacity to perform light to medium work such as lifting and carrying pails of caustic solution, boxes of instant coffee or bags of diatomic powder; near and far visual acuity to monitor gauges and instruments at varying distances; colour vision in occupations where colour is an essential characteristic in determining product quality; adaptability to working in wet and humid areas, and to conditions where there is a risk of burns from cleaning agents and hot liquor, or bodily injuries from exploding glass bottles; capacity to work in conditions of heat, fumes and odours; spatial perception to interpret irregularities in equipment operation from panelboard indicators.

TRAINING AND ENTRY REQUIREMENTS: nine to ten years of general education; one to twelve months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers may advance to some occupations requiring higher skills within the cluster. With some additional training, advancement may also be to appropriate occupations in Chapter 8226 INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS: FOOD, BEVERAGE AND RELATED PROCESSING. Those with supervisory potential may also advance to 8210-114 FOREMAN, BEVERAGE PROCESSING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Skills acquired by workers are not readily transferable outside the beverage industry. Generally, transfers are to occupations requiring similar skills within the chapter.

OCCUPATIONAL TITLES:

8227-110	INSTANT-COFFEE-EXTRACTOR OPERATOR	8227-270	FERMENTATION OPERATOR
8227-258	GRAIN-MEAL PROCESSOR	8227-298	YEAST-ROOM OPERATOR
8227-262	STILL OPERATOR	8227-178	BEER FILTERMAN
8227-266	LIQUOR BLENDER	8227-182	MASH MAN
8227-114	DRIER, INSTANT COFFEE	8227-302	MALTSTER
8227-174	WORT MAKER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	4	4	4	3	5	5	L-M47	I3467	3	5-3	91	YO
				3	4	5			4	4	3						

8227-B BEVERAGE PROCESSING OCCUPATIONS

665, 685

WORK PERFORMED: This chapter includes occupations concerned with processing beverage products such as coffee, tea, fruit juices, soft drinks, beer, wine and liquor. Worker functions include: operating and tending beverage processing equipment to crush, mix, grind, roast, cook or extract ingredients, and to malt, ferment, brew, carbonate, pasteurize, blend or distill beverages; and comparing beverage products and results of processing tests with specified standards. Work activities include: weighing ingredients or products; monitoring processing operations; moving switches, adjusting temperature or pressure controls, or turning valves to start machines or processing equipment; examining products; obtaining samples and conducting routine tests; recording production data; performing minor maintenance to processing equipment; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: learning ability to understand and apply the procedures and techniques required to operate or tend beverage processing equipment and reasoning ability to diagnose processing irregularities; form perception to make visual comparisons of materials during processing operations to detect divergence from specified standards; eye-hand co-ordination to read gauges and simultaneously turn valves or controls, or to use scales to weigh tea, ground coffee, milled grain or barrels of wine; manual dexterity to use hand tools to prepare and maintain equipment, or to use test apparatus to conduct quality tests on product samples; physical capacity to perform light to medium work such as lifting and carrying pails of caustic solutions, boxes of instant coffee or bags of diatomic powder; the ability to climb stairs, maintain equilibrium of platforms and to stoop or bend while tending beverage processing equipment; near and far visual acuity to monitor gauges and instruments at varying distances; colour vision in occupations where colour is an essential characteristic in determining product quality; adaptability to working in wet and humid areas, and to conditions where there is a risk of burns from cleansing agents and hot liquor, or bodily injuries from exploding glass bottles; the capacity to work around machines that create considerable noise.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; on-the-job training ranging from a few days to six months depending on the complexity of the job.

ADVANCEMENT POSSIBILITIES: Experienced workers may advance to some occupations requiring higher skills within the cluster or to Cluster A. With some additional training, advancement may also be to appropriate occupations in Chapter 8226 INSPECTING, TESTING GRADING AND SAMPLING OCCUPATIONS: FOOD, BEVERAGES AND RELATED PROCESSING. Those with supervisory potential may also advance to 8210-114 FOREMAN, BEVERAGE PROCESSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Skills acquired by workers are not readily transferable outside the beverage industry. Generally, transfers are to occupations requiring similar basic skills within the chapter.

OCCUPATIONAL TITLES:

8227-222 CIDER MAKER
8227-226 CELLARMAN, WINERY
8227-118 COFFEE GRINDER
8227-186 KETTLE-MAN
8227-274 TANKMAN
8227-122 COFFEE ROASTER
8227-190 COOLING-MACHINE TENDER
8227-194 CARBONATION MAN
8227-126 COFFEE BLENDER
8227-230 CRUSHING-MACHINE TENDER
8227-234 WINE FINISHER
8227-238 WINE PASTEURIZER
8227-146 CITRUS-JUICE EXTRACTOR
8227-150 FRUIT-PRESS TENDER
8227-154 JUICE BLENDER
8227-198 BEER PASTEURIZER
8227-202 YEAST PUSHER
8227-278 COOKER TENDER
8227-306 SOFT-DRINK MIXER
8227-310 TEA BLENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	4	4	L-M2347	I456	3-2	4-2	319	Y02
			5		3	4				5	5						

8228 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK: FOOD, BEVERAGE AND RELATED PROCESSING

586, 587, 686, 687

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work found in food, beverage and related products processing establishments. Worker functions include: feeding materials into and offbearing products from machines that skin pork pieces, sort and wash fruit and vegetables, clean fish, chop nuts, grease baking pans or perform similar functions; and handling and moving raw materials or products between production and storage areas. Work activities include: wrapping, weighing and labelling meat and other food products; slaughtering, eviscerating, sorting and packing poultry; washing animal carcases; shucking shellfish; cutting and pitting fruit; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: learning ability to understand simple oral or written instructions and to apply them to perform a variety of routine and uncomplicated tasks; eye-hand-finger co-ordination and the ability to move the arms in machines, or removing sub-standard foods from moving conveyors; manual dexterity to eviscerate poultry, weigh, wrap and pack food products, or shuck fresh or steamed shellfish; physical capacity to lift and carry bags of flour, tubs of vegetables, pails of lard and sacks fo coffee weighing up to one hundred pounds; to push or pull hand trucks and wheelbarrows; and to stoop or bend when washing equipment or stacking cartons on pallets; adaptability to working in wet and damp areas where vegetables, poultry or animal carcasses are washed and cleaned, and in proximity to cookers, sterilizers and steam vats that raise himidity sufficiently high to cause physical discomfort; capacity to work close to wrapping and packaging machines, conveyors, defeathering machines, sterilizers or canning machines that are noisy and may cause discomfort or distraction.

TRAINING AND ENTRY REQUIREMENTS: no specified minimum educational level, but eight years of schooling is preferred.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs and advancement is normally to higher skilled occupations in Minor Group 821/822 FOOD, BEVERAGE AND RELATED PROCESSING OCCUPATIONS for workers who demonstrate ability, interest and initiative.

TRANSFER POSSIBILITIES: Transfer may be to occupations requiring similar skills within this chapter or to other occupations in labouring and elemental work in other chapters.

OCCUPATIONAL TITLES:

8228-110 CASING STRIPPER
8228-114 SKINNING-MACHINE FEEDER
8228-118 MEAT PACKAGER
8228-120 POULTRY-COOLER WORKER
8228-122 SMOKED-MEAT PREPARER
8228-126 EVISCERATOR, POULTRY
8228-130 GAMBRELER
8228-134 LABOURER, MEAT-PACKING PLANT
8228-138 MEAT-LOAF TRIMMER
8228-142 NECK SKEWER
8228-146 POULTRY SLAUGHTERER
8228-150 CARCASS WASHER
8228-154 POULTRY HANGER
8228-158 POULTRY PINNER
8228-178 FISH-CLEANING-MACHINE FEEDER
8228-182 FISH-PROCESSING-MACHINE FEEDER
8228-186 FISH ICER
8228-190 SHELLFISH SHUCKER
8228-194 BRINER, FISH
8228-198 FISH-BIN MAN
8228-202 LABOURER, SHELLFISH PROCESSING
8228-206 FISH RACKER
8228-224 BAKE-PAN GREASER
8228-226 LABOURER
8228-230 LABOURER, BAKERY
8228-234 NUT-CHOPPING-MACHINE FEEDER
8228-238 NUT SORTER
8228-258 CHAR-KILN-FIREMAN HELPER
8228-260 CHAR PULLER
8228-261 KNIFE-SETTER HELPER
8228-262 SUGAR-BOILER HELPER
8228-266 FLUMER HELPER
8228-270 BEET-WASHER HELPER
8228-290 FOOD-PROCESS LABOURER
8228-294 MIXER HELPER
8228-298 SORTING-MACHINE FEEDER
8228-302 WASHING-MACHINE FEEDER
8228-306 EDIBLE-OIL-PROCESS LABOURER
8228-310 LABOURER, STARCH FACTORY
8228-314 LABOURER, SYRUP PROCESSING
8228-318 LABOURER, YEAST PLANT
8228-322 POTATO-CHIP SORTER
8228-326 FRUIT SPLITTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	$\underline{4}$	4	$\underline{3}$	5	5	L-H34	I45	I	2-1	13	23
			4				$\underline{3}$		$\underline{4}$	4							

8231-A SAWMILL SAWYERS AND RELATED OCCUPATIONS 382, 682

WORK PERFORMED: This chapter includes occupations concerned with processing logs into rough lumber, and sawing, splitting and planing rough lumber into stock of various sizes. Worker functions include: operating, tending or feeding circular saws, band saws or other lumber-mill equipment to cut logs or lumber to specified dimensions; compiling data through observation of logs to determine cuts that will produce optimum grade and amount of lumber; and comparing size and appearance of cut stock to specified standards. Work activities include: adjusting machine blades or cutters for depth and width of cut required; moving hand and foot controls to start, stop and regulate speed of equipment; and cutting out defective sections in wood stock.

APTITUDES AND CAPACITIES: learning ability to understand lumber-milling methods and technqiues and to follow instructions; spatial perception to operate, adjust and repair machines and to align logs and lumber on feeding machanisms; eye-hand co-ordination to synchronize controls of log carriages, saws, conveyers and other lumber-mill machines; manual dexterity to work with the hands easily and skilfully when moving controls and adjusting machines or when using work aids to clear jammed equipment; visual acuity, near and far, to perform activities such as adjusting machines and guiding and positioning materials on machines; capacity to work and remain alert in the presence of loud noises and vibrations from machines, with occasional exposure to hazards such as moving parts, flying particles and dust; finger dexterity to use tools and other work aids when adjusting or maintaining machines; eye-hand-foot co-ordination to move hand and foot controls simultaneously and occasionally to climb or balance on or around equipment.

TRAINING AND ENTRY REQUIREMENTS: ten years of general education; three months to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers with supervisory potential may advance to 8230-122 FOREMAN, SAWMILL SAWYERS AND RELATED OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILTIES: Workers may transfer to other occupations within the cluster. Experienced workers may also transfer to occupations in Chapter 8236 INSPECTING, TESTING AND GRADING OCCUPATIONS: WOOD PROCESSING, EXCEPT PAPER PULP, for example 8236-114 GRADER, LUMBER and 8236-118 SHINGLE INSPECTOR.

OCCUPATIONAL TITLES:

8231-110 HEAD-SAW OPERATOR
8231-114 EDGERMAN, AUTOMATIC
8231-118 TRIMMER MAN
8231-122 GANG SAWYER, CANT
8231-126 GANG SAWYER, LOG
8231-130 LUMBER-SIZER OPERATOR
8231-134 LOG-CUT-OFF SAWYER, AUTOMATIC

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	4	5	3	4	4	4	5	L47	I5	3	6-4	913	9Y20
					3	4			3	5							9Y2

8231-B SAWMILL SAWYERS AND RELATED OCCUPATIONS

685, 686

WORK PERFORMED: This chapter includes occupations concerned with processing logs into rough lumber, and sawing, splitting and planing rough lumber into stock of various sizes. Worker functions include: operating, tending or feeding circular saws, band saws or other lumber-mill equipment to cut logs or lumber to specified dimensions; compiling data through observation of logs to determine cuts that will produce optimum grade and amount of lumber; and comparing size and appearance of cut stock to specified standards. Work activities include: adjusting machine blades or cutters for depth and width of cut required; moving hand and foot controls to start, stop and regulate speed of equipment; and cutting out defective sections in wood stock.

APTITUDES AND CAPACITIES: learning ability to understand lumber-milling methods and techniques and to follow instructions; spatial perception to operate, adjust and repair machines and to align logs and lumber on feeding mechanisms; eye-hand co-ordination to synchronize controls of log carriages, saws, conveyers and other lumber-mill machines; manual dexterity to work with the hands easily and skilfully when moving controls and adjusting machines or when using work aids to clear jammed equipment; visual acuity,,near and far, to perform activities such as adjusting machines and guiding and positioning materials on machines; capacity to work and remain alert in the presence of loud noises and vibrations from machines, with occasional exposure to hazards such as moving parts, flying particles and dust; physical stength for some occupations, to perform heavy work requiring lifting and carrying lumber and wooden blocks weighing up to fifty pounds; capacity to work while exposed to hazards such as moving parts, flying particles and dusty conditions.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; from two weeks to six months of on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers who acquire additional training may advance to some occupations in Cluster A. Workers with supervisory potential may advance to 8230-122 FOREMAN, SAWMILL SAWYERS AND RELATED OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations within the cluster. Experienced workers may also transfer to occupations in Chapter 8236 INSPECTING, TESTING, AND GRADING OCCUPATIONS: WOOD PROCESSING, EXCEPT PAPER PULP for example, 8236-114 GRADER, LUMBER and 8236-118 SHINGLE INSPECTOR.

OCCUPATIONAL TITLES:

8231-138 LOG-CUT-OFF SAWYER
8231-142 TRIMMING-MACHINE OPERATOR
8231-146 SHAKE SPLITTER
8231-150 EDGER MAN
8231-154 SHINGLE SAWYER
8231-158 STAVE-BOLT SAW OPERATOR
8231-162 SCRAP CUT-OFF SAWYER
8231-166 SHAKE SAWYER
8231-170 BLOCK SAWYER, BARREL ENDS
8231-174 SPLITTERMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	4	5	L-H47	I567	3-2	4-2	913	29Y
			5	3			4		4	5							23Y

8233-A PLYWOOD MAKING AND RELATED OCCUPATIONS

682, 684

WORK PERFORMED: This chapter includes occupations concerned with peeling, slicing, gluing, pressing and trimming veneer to form plywood panels. Worker functions include: operating, tending or feeding machines such as lathes, presses, scarfing machines and shears to process veneers; comparing appearance and dimensions of veneer and panels to specified standards; and manipulating tools such as router, caulking gun, putty knife and brush to repair or patch defects. Work activities include: adjusting knives, pressure bars, and other machine components according to dimensions of veneer to be cut; moving levers, pressing buttons or turning valves to start, stop and regulate equipment; measuring thickness of veneer; examining sheets or strips for splits, cracks and other defects; and matching veneer strips according to grain, pattern, texture and shade.

APTITUDES AND CAPACITIES: learning ability to understand and apply the techniques of veneer and plywood making operations and to carry out instructions; form perception to match veneer according to grain and pattern or to discern defects such as knots, pitch pockets and holes in veneer or plywood; eye-hand-finger co-ordination and manual dexterity to adjust machine controls, position workpieces and use measuring instruments and tools; physical strength, to lift and carry materials weighing up to fifty pounds; capacity to work in close proximity to machines that generate considerable noise; adaptability to working conditions in which there is exposure to a variety of hazards, such as moving mechanical parts of machines, burns from hot-plate presses and dust; spatial perception, especially for operators, to understand the correct functioning and relationship of machine parts in order to operate and make adjustments to equipment.

TRAINING AND ENTRY REQUIREMENTS: ten years of general education; three months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With some additional training, workers in this chapter may advance to occupations requiring higher skills within their individual cluster. Those with experience and supervisory potential may also advance to 8230-118 FOREMAN, PLYWOOD MAKING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within this chapter, or to appropriate occupations in other chapters, for example, 8326-126 GRADER, VENEER AND PLYWOOD.

OCCUPATIONAL TITLES:

8233-110	PANEL-SANDING-MACHINE OPERATOR
8233-112	VENEER-LATHE OPERATOR
8233-114	PLYWOOD-PANEL GROOVER OPERATOR
8233-118	VENEER-SLICING-MACHINE OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	4	3	5	5	L-M47	I-56	3	5-4	913	YO
				4	4	5					4						

8233-C PLYWOOD MAKING AND RELATED OCCUPATIONS 565, 664, 666, 667, 684, 685, 686, 886

WORK PERFORMED: This chapter includes occupations concerned with peeling, slicing, gluing, pressing and trimming veneer to form plywood panels. Worker functions include: operating, tending or feeding machines such as lathes, presses, scarfing machines and shears to process veneers; comparing appearance and dimensions of veneer and panels to specified standards; and manipulating tools such as router, caulking gun, putty knife and brush to repair or patch defects. Work activities include: adjusting knives, pressure bars, and other machine components according to dimensions of veneer to be cut; moving levers, pressing buttons or turning valves to start, stop and regulate equipment; measuring thickness of veneer; examining sheets or strips for splits, cracks and other defects; and matching veneer strips according to grain, pattern, texture and shade.

APTITUDES AND CAPACITIES: learning ability to understand and apply the techniques of veneer and plywood making operations and to carry out instructions; form perception to match veneer according to grain and pattern or to discern defects such as knots, pitch pockets and holes in veneer or plywood; eye-hand-finger co-ordination and manual dexterity to adjust machine controls, position workpieces and use measuring instruments and tools; physical strength, particularly for workers in Cluster C, to lift and carry materials weighing up to fifty pounds; capacity to work in close proximity to machines that generate considerable noise; adaptability to working conditions in which there is exposure to a variety of hazards, such as moving mechanical parts of machines, burns from hot-plate presses and dust; agility to work in awkward positions, such as stooping and bending while loading and unloading presses and handling plywood and equipment.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; two weeks to four months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With some additional training, workers in this chapter may advance to occupations requiring higher skills within their individual cluster, or from Cluster C to B and A. Those with experience and supervisory potential may also advance to 8230-118 FOREMAN, PLYWOOD MAKING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within this chapter, or to appropriate occupations in other chapters, for example, 8326-126 GRADER, VENEER AND PLYWOOD.

OCCUPATIONAL TITLES:

8233-122	HOT-PLATE-PRESS TENDER
8233-138	PLYWOOD PATCHER, MACHINE
8233-142	VENEER-CLIPPER TENDER, AUTOMATIC
8233-146	CORE-LAYING-MACHINE TENDER
8233-150	SCARFING-MACHINE TENDER
8233-154	VENEER CLIPPER
8233-158	VENEER-REEL TENDER
8233-162	VENEER-SPLICER TENDER
8233-166	VENEER JOINTER
8233-170	GLUE SPREADER
8233-174	LATHE SPOTTER
8233-178	HOT-PLATE-PRESS-TENDER HELPER
8233-182	PLYWOOD-PANEL ASSEMBLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	4	5	L-H3457	I-567	3-2	4-2	139	23Y
			5	5	3	4	4			5							

8235-A WOOD TREATING OCCUPATIONS 362, 382, 662

WORK PERFORMED: This chapter includes occupations concerned with seasoning or conditioning wood, treating wood with preservatives and fire-retardants, and producing wood conglomerates such as particle board, hardboard and artificial fuel logs. Worker functions include: operating or tending equipment such as kilns, tanks, steam cookers and grinding machines; compiling data from meters, gauges and charts to ensure materials are processed according to specifications; comparing dimensions, weight and appearance of finished articles to establish standards; and recording daily production. Work activities include: moving controls such as levers, buttons and valves to start, stop and regulate treating processes; monitoring control panels and making necessary adjustments; measuring or weighing articles; and examining products for defects.

APTITUDES AND CAPACITIES: learning ability to understand and apply a variety of instructions for the operation or tending of wood-treating equipment; form perception to discern deviations from standards in quality of finished products; eye-hand-finger co-ordination and manual dexterity to weigh samples, manipulate tools and work aids and handle materials and products; near visual acuity to read gauges, meters and other measuring instruments; ability to work, usually inside, while exposed to extreme heat from equipment such as kilns and steam-heated dryers; capacity to work in close proximity to machines that generate considerable noise; adaptability to working where there are hazards such as steam and hot liquids, moving parts of machines and fumes from preservative liquids; spatial perception to visualize desired characteristics of end products and to understand the functions and relationship of machine parts in order to operate and adjust wood-treating equipment.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; six months to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Possibilities for advancement for workers in this cluster may be to higher skilled occupations in their cluster. Those with supervisory potential may advance to 8230-126 FOREMAN, WOOD TREATING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this cluster may transfer to other occupations within their cluster. Experienced workers may, with limited additional training, also transfer to appropriate occupations in Chapter 8236, INSPECTING TESTING AND GRADING OCCUPATIONS: WOOD PROCESSING, EXCEPT PAPER PULP.

OCCUPATIONAL TITLES:

8235-110	KILN OPERATOR
8235-114	GRINDING-MACHINE OPERATOR, HARDBOARD
8235-118	FORMING-LINE OPERATOR, HARDBOARD
8235-122	FORMING-MACHINE OPERATOR, PARTICLE BOARD
8235-126	PRESS-LINE OPERATOR, PARTICLE BOARD
8235-130	TIMBER-TREATING-TANK OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C						
	3	4	4	3	3	4	3	4	3	5	4	L-M457	I-356	4-3	6-5	91	OY4
		3	3	4	4												OY

8236 - INSPECTING, TESTING AND GRADING OCCUPATIONS: WOOD PROCESSING, EXCEPT PAPER PULP

364, 384, 387, 587

WORK PERFORMED: This chapter includes occupations concerned with quality control activities in the processing of lumber and other wood products, except paper pulp. Worker functions include: comparing characteristics of lumber, telephone poles, shingles, plywood panels and other processed items to specified standards; compiling data from specifications to determine appropriate inspection procedures and standards of quality; handling lumber and wood products; manipulating marking tools and measuring instruments; and recording inspection, grading or test results. Work activities include: determining moisture content of treated poles; examining products for knots, splits and other defects; measuring dimensions; and grading products according to texture, size, colour and other specifications.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow quality control procedures and techniques in the processing of lumber and other wood products; numerical ability to make measurements and calculations quickly and accurately: form perception to inspect lumber for defects such as knots, stains, faulty edges and worm holes, to perform routine tests and to grade lumber; clerical ability to take measurements, record test results or write reports; eye-hand co-ordination and manual dexterity to handle measuring and testing instruments and products; physical capacity to perform light to medium work involving reaching for and handling lumber or wood products, with frequent stooping and bending to inspect and mark grade or identification; adaptability to work either inside or outside while exposed to loud continuous noises from woodworking machinery.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; three to twelve months experience in a related occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter with supervisory potential, may advance to 8230-110 FOREMAN, INSPECTING, TESTING AND GRADING OCCUPATIONS, WOOD PROCESSING. See also Chapter 990, FOREMAN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations within the chapter, or to appropriate occupations in Minor Group 823, WOOD PROCESSING OCCUPATIONS, EXCEPT PAPER PULP.

OCCUPATIONAL TITLES:

8236-110	TREATED-POLE TESTER
8236-114	GRADER, LUMBER
8236-118	SHINGLE INSPECTOR
8236-122	POLE INSPECTOR
8236-126	GRADER, VENEER AND PLYWOOD
8236-130	TIE-AND-TIMBER INSPECTOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	5	4	L-M347	I-05	3-2	4-3	913	OY2
	3				3				4								

8238 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK: WOOD PROCESSING, EXCEPT PAPER PULP

686, 687, 887

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in the processing of logs and rough lumber to make dressed stock, plywood, wood conglomerates and similar products. Worker functions include: handling logs, lumber and wood stock in a sawmill, shingle mill, plywood mill or lumber yard; feeding materials into cutting, pressing or drying machines; and comparing appearance of lumber to specified standards, in order to sort pieces by length and grade markings, or to detect defects. Work activities include: loading and unloading railway cars, trucks, barges and conveyors; stacking materials into piles; manually peeling bark from logs; and cleaning machines and work areas.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow simple instructions and perform a variety of uncomplicated tasks; form perception to visually inspect shingles, plywood or veneer for defects, or to sort lumber according to grade and size; eye-hand-finger co-ordination and manual dexterity to load, unload, position and sort materials and products, and use tools; physical capacity to perform medium to heavy work requiring frequent lifting, carrying, reaching and handling of materials, products and tools weighing up to fifty pounds; agility, for some workers, to climb onto railway cars or trucks and to balance on wood stock or log piles; physical capacity to bend and stoop when feeding materials into machines, sorting and stacking materials, and cleaning equipment; near visual acuity for activities such as examining logs for embedded objects inspecting shingles for defects, or sorting lumber and wood products according to grade, markings or size; adaptability to work, usually inside, while exposed to constant or intermittent noise from machines and equipment, and to hazardous conditions, such as close promimity to moving parts of machines and exposure to fumes and odours from wood preservatives.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: six to eight years of general education; on-the-job training ranging from a short demonstration up to one month.

ADVANCEMENT POSSIBILITIES: Advancement possibilities for workers in this chapter, who demonstrate ability, interest and initiative, may be to more skilled occupations in Minor Group 823, WOOD PROCESSING OCCUPATIONS, EXCEPT PAPER PULP.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within the chapter, or to appropriate labouring and other elemental occupations in other chapters.

OCCUPATIONAL TITLES:

8238-110	SHINGLE TRIMMER	8238-126	LABOURER, WOOD-PRESERVING PLANT
8238-114	VENEER-STRIP-CUT-OFF SAWYER	8238-130	LOG PEELER, HAND
8238-118	LABOURER, PLYWOOD & VENEER PLANT	8238-134	SAWMILL LABOURER
8238-122	LUMBER SORTER	8238-138	BARKING-MACHINE CLEANER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	4	5	M-H2347	I-0567	1	2-1	31	23
		5	4							5							

8239-A WOOD PROCESSING OCCUPATIONS, EXCEPT PAPER PULP, N.E.C. 682, 685

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with removing bark from logs, trimming pressed board or plywood panels and reducing logs to chips, excelsior or wood flour. Worker functions include: operating or tending barking machines, sizing saws, pulverizers or chipping machines; and comparing appearance and dimensions of processed wood-products to specified standards. Work activites include: pushing buttons or moving levers to start and stop machines; adjusting guides and cutting knives; regulating conveyor speeds; clearing blockages; and cleaning equipment and work areas.

APTITUDES AND CAPACITIES: learning ability to understand written or oral instructions and apply them when operating or tending log or wood-processing equipment; eye-hand co-ordination to adjust controls, operate overhead hoists or clear conveyor blockages; manual dexterity when using hand tools to replace or repair cutting tools, screens or conveyor blockages; manual dexterity when using hand tools to replace or repair cutting tools, screens or conveyor belts; physical capacity to perform light to heavy work, lifting one hundred pounds with frequent lifting or carrying of objects weighing up to fifty pounds, depending on the occupation involved; such as, lifting sacks of wood flour, rolling logs or shovelling spilled scrap; visual acuity, both near and far, to inspect wood flour and to observe wood-processing operation from varying distances; adaptability to both inside and outside work conditions, and to loud noises from saws, pulverizers or barking machines; spatial perception to correctly set cutting heads, rotating knives or water-jet nozzles to bark logs; eye-hand-foot co-ordination for 8239-110 HYDRAULIC-BARKER OPERATOR to simultaneously operate hand and foot controls that regulate wash water and log rotation.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; one to six months of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory abilities and a potential for leadership may advance to appropriate occupations in Unit Group 8230, FOREMEN: WOOD PROCESSING OCCUPATIONS, EXCEPT PAPER PULP. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within the chapter. With limited additional training, transfer may also be to other appropriate occupations requiring similar basic skills in Minor Group 823, WOOD PROCESSING OCCUPATIONS, EXCEPT PAPER PULP.

OCCUPATIONAL TITLES:

8239-110	HYDRAULIC-BARKER OPERATOR
8239-114	BARKING-MACHINE OPERATOR
8239-118	RING-BARKER OPERATOR
8239-122	DRUM-BARKER TENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	3 4	4	5	3 4	4	3	4 3 5	5	L-M47	I-B5	3-2	4	913	20Y

8251-A CELLULOSE PULP PREPARING OCCUPATIONS

262, 362, 562, 662, 682

WORK PERFORMED: This chapter includes occupations concerned with reducing logs, rags, scrap, pulp and similar cellulose materials to pulp slurry. Worker functions include: operating and tending machines that grind logs or wood chips into fibres used in making wood pulp, or controlling equipment to mix, screen, refine, cook, bleach, wash and dry pulp material. Work activities include: monitoring control panels of bleachers, digesters and screening-room equipment; adjusting temperature and pressure controls; starting pumps and turning valves to regulate flow of water, pulp and chemicals; collecting samples of fluids and pulp during processing; cleaning, adjusting and lubricating equipment; and cleaning work areas.

APTITUDES AND CAPACITIES: learning ability to understand cellulose pulp processing machinery operating and support activities and to carry out detailed written or oral work instructions; form perception to make visual comparisons and see slight differences in consistency of materials; eye-hand co-ordination and manual dexterity to move controls and turn valves to regulate flow of materials while observing gauges and indicating devices, start and stop pumps, conveyors and other equipment, and to collect samples and perform production quality control tests; ability, for some workers, to give clear oral instructions to others; good hearing for most workers, but particularly for digester operations and bleacher operators, to detect noises indicating malfunctioning equipment or processing cycles; near visual acuity to observe gauges and lighted flow diagrams on control panels and to take readings with a variety of instruments, such as hydrometers and pH meters; colour vision to monitor indicator lights on control panels and to perform titration tests; adaptability to working in unpleasant environmental conditions, such as wetness and humidity, close proximity to noisy equipment, and exposure to odors and noxious fumes; agility to climb steps and ladders on machines or vats to monitor operations or to adjust or clean equipment; spatial perception to monitor control panels to locate malfunctioning equipment, or inconsistent material flow or product process.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; six months to four years of related experience and on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Workers in this chapter may advance to more highly skilled occupations within their own cluster. Experienced workers with supervisory potential may advance to 8250-110 FOREMAN, CELLULOSE-PULP-PREPARING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to other occupations requiring similar skills within their individual cluster, or in some instances with limited additional training to occupations in other clusters. Experienced workers may also transfer to appropriate occupations in Chapter 8256, INSPECTING TESTING, GRADING AND SAMPLING OCCUPATIONS, PULP AND PAPERMAKING.

OCCUPATIONAL TITLES:

8251-110	CONTINUOUS-DIGESTER OPERATOR
8251-114	BLEACHER OPERATOR, PULP
8251-118	DIGESTER OPERATOR
8251-122	SCREEN-ROOM OPERATOR
8251-126	BEATER OPERATOR
8251-130	GRINDER MAN
8251-134	PULP-DRIER OPERATOR
8251-138	BROWN-STOCK WASHER
8251-142	PULP-REFINER OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	4	4	4	4	5	4	L-4567	I-457	4-3	7-4	93	YO
	4	3	3		4				3		3	L-M247					

8253-A PAPERMAKING AND FINISHING OCCUPATIONS 332, 382, 662

WORK PERFORMED: This chapter includes occupations concerned with making paper, paper pulp and paperboard, imparting gloss and finish to paper, and forming insulation board. Worker functions include: operating, tending or feeding machines that make paper or insulating board from pulp stock, or dry, size, calender, wind, coat, laminate or cut sheet pulp or paper for further processing. Work activities include: turning valves and setting panel controls to regulate flow of materials into machines; adjusting temperatures, pressures and speed of rolls; observing material coming off machines for defects such as dirt, wrinkles, lumps or tears; performing routine tests; recording production; and cleaning and adjusting machines.

APTITUDES AND CAPACITIES: learning ability to understand and apply the procedures for operating paper making and finishing machinery; spatial perception to visualize factors such as the ingredient type, flow and mix required to achieve the specified product from machine being operated; form perception to inspect product for such defects as dirt, slime spots, holes, scratches and wrinkles to ensure correct operation of production process; eye-hand co-ordination and manual dexterity to adjust panel and machine controls, turn valves and handwheels, thread stock through rollers and cut samples from processed rolls for test purposes; adaptability to work while exposed to loud continuous noise in a wet, humid, and hot environment.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; from three months to four years of related experience and on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers in this cluster may advance to occupations within the cluster that are concerned with more complex machines. Those with supervisory potential may advance to 8250-118 FORMAN, PAPERMAKING AND FINISHING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this cluster may be to other occupations requiring similar skills within the cluster.

OCCUPATIONAL TITLES:

8253-110	FOURDRINIER-MACHINE OPERATOR
8253-114	CYLINDER-MACHINE OPERATOR
8253-118	BACK TENDER, PAPER MACHINE
8253-122	PAPER-COATING-MACHINE OPERATOR
8253-126	WINDERMAN, PAPER MACHINE
8253-130	COATING-MACHINE OPERATOR
8253-134	COMBINER-MACHINE OPERATOR
8253-138	SUPERCALENDER OPERATOR
8253-142	HIGH-DENSITY-FINISHING OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	4	3	5	4	L-24567	I-345	4-3	7-4	91	YO
	4	3					4		4	4	5	M-457	I-5				

8253-B PAPERMAKING AND FINISHING OCCUPATIONS

585, 683, 685, 686

WORK PERFORMED: This chapter includes occupations concerned with making paper, paper pulp and paperboard, imparting gloss and finish to paper, and forming insulation board. Worker functions include: operating, tending or feeding machines that make paper or insulating board from pulp stock, or dry, size, calender, wind, coat, laminate or cut sheet pulp or paper for further processing. Work activities include: turning valves and setting panel controls to regulate flow of materials into machines; adjusting temperatures, pressures and speed of rolls; observing material coming off machines for defects such as dirt, wrinkles, lumps or tears; performing routine tests; recording production; and cleaning and adjusting machines.

APTITUDES AND CAPACITIES: learning ability to tend auxiliary paper making machinery, and help machinery operators; form perception to detect spots, holes, wrinkles, cockled edges and dirt in production paper; eye-hand co-ordination and manual dexterity to set up machines and equipment, adjust controls and handle and load product; strength to perform light to heavy work frequently requiring lifting of articles from small hand tools to paper reel axles weighing fifty pounds; agility to work in awkward positions such as stooping, crouching and kneeling; near visual acuity to set guides and stops of machine to close tolerances; adaptability to work while exposed to loud continuous noise.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; up to one month of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this cluster who acquire additional training may advance to occupations requiring higher skills in Cluster A.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this cluster may be to other occupations requiring similar skills within the cluster.

OCCUPATIONAL TITLES:

8253-146	SUPERCALENDER-OPERATOR HELPER
8253-150	PRESS TENDER, INSULATION BOARD
8253-154	LAYBOY TENDER
8253-158	PAPER-MACHINE HAND
8253-162	CARBON-PAPER CUTTER
8253-166	DRIER TENDER, INSULATION BOARD
8253-170	FRICTION-PAINT-MACHINE TENDER
8253-174	PAPER COATER
8253-178	PULP-PRESS TENDER
8253-180	REELER, WALLPAPER
8253-182	REWINDER, PROCESSED PAPER
8253-186	REWINDER TENDER
8253-190	VARNISHING-MACHINE TENDER
8253-194	COATING-MACHINE-OPERATOR HELPER
8253-198	COMBINER-MACHINE-OPERATOR HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4 5	4 5	$\underline{4}$ $\underline{3}$	5 4	$\underline{4}$	4	$\underline{4}$ $\underline{3}$	4 5	5	L-H347	I-5	2	3-2	931	23Y

8256-A INSPECTING, TESTING, GRADING & SAMPLING OCCUPATIONS, PULP & PAPERMAKING

281, 364

WORK PERFORMED: This chapter includes occupations concerned with quality control activities in pulp processing, pulpboard manufacturing and papermaking. Worker functions include: analyzing data obtained by examining and completing physical and chemical tests on pulp, paper and other materials; compiling information from specifications and results of production tests to ensure specified standards of quality are met; manipulating measuring devices and testing apparatus to establish characteristics such as freeness quality, acidity and conductivity of pulp stock, or brightness, colour, opacity and porosity of paper; working to precise tolerances when making measurements; and handling products or samples during inspection procedures. Work activities include: collecting samples for testing of product and monitoring production processes; examining pulpwood, wallboard and tiles to detect flaws or irregularities; sorting and grading rags used for papermaking; and sorting, verifying dimensions and counting paper sheets.
APTITUDES AND CAPACITIES: learning ability to acquire a knowledge of, and to carry out the physical and chemcial laboratory testing procedures for pulp and paper, and to write reports of findings; numerical ability to conduct quantitative tests, to calculate test results and to accurately report findings; spatial perception to visualize end product by laboratory testing of samples taken at various stages of production process; form perception to make visual comparisons during testing procedures, such as testing smoothness and porosity of paper; eye-hand-finger co-ordination and finger dexterity to handle minute product samples and to use precision laboratory instruments; manual dexterity to use industrial testing machines; colour discrimination to discern variations of colour in product or tests involving colour comparison or indications; capacity to handle precision instruments and to finger and feel objects and materials; near visual acuity to examine samples of product for variations from standards; adaptability to work while exposed to loud and nosiy machinery.
TRAINING AND ENTRY REQUIREMENTS: twelve years of general education; one to two years of on-the-job training and related experience in a pulp and paper inspecting occupation.
ADVANCEMENT POSSIBILITIES: Workers in this cluster with experience and supervisory potential may advance to 8250-112 FOREMAN, INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, PULP AND PAPERMAKING. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.
TRANSFER POSSIBILITIES: Because of the specialized nature of the work, transfer possibilities for workers in this cluster are most likely to occupations, possibly as assistants, in other manufacturing laboratories.
OCCUPATIONAL TITLES:
8256-110 LABORATORY TESTER
8256-114 PAPER TESTER
8256-118 PULP TESTER

OCCUPATIONAL TITLES:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	2	3	3	3	3	5	3	L-47	I-5	4-3	6-5	197	0Y1
																19	0Y

8256-B INSPECTING, TESTING, GRADING & SAMPLING OCCUPATIONS, PULP & PAPERMAKING 267, 367

WORK PERFORMED: This chapter includes occupations concerned with quality control activities in pulp processing, pulpboard manufacturing and papermaking. Worker functions include: analyzing data obtained by examining and completing physical and chemical tests on pulp, paper and other materials; compiling information from specifications and results of production tests to ensure specified standards of quality are met; manipulating measuring devices and testing apparatus to establish characteristics such as freeness quality, acidity and conductivity of pulp stock, or brightness, colour, opacity and porosity of paper; working to precise tolerances when making measurements; and handling products or samples during inspection procedures. Work activities include: collecting samples for testing of product and monitoring production processes; examining pulpwood, wallboard and tiles to detect flaws or irregularities; sorting and grading rags used for papermaking; and sorting, verifying dimensions and counting paper sheets.

APTITUDES AND CAPACITIES: learning ability to recognize an acceptable standard for pulp processing, pulpboard manufacturing and papermaking, to relate test reports to the production process, and to relay corrective action required in process to achieve desired standards; spatial perception to visualize changes required in production process to achieve specified product; form perception to recognize visible deviations from standards such as tears, holes, wrinkles, slime or poor finish in paper being inspected; eye-hand co-ordination to handle product or samples of product during examination for defects; strength to perform light to medium work requiring the lifting of pulpboard panels weighing up to twenty pounds; ability to transmit oral instructions to other workers, clearly and concisely; near visual acuity and colour vision to inspect product and discern any defects or variations from standards.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; three to eighteen months of on-the-job training and related experience in papermaking, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Workers in this cluster may advance to occupations in Cluster A.

TRANSFER POSSIBILITIES: Experienced workers in this cluster may transfer to other occupations requiring similar skills within the cluster.

OCCUPATIONAL TITLES:

8256-112	PAPER INSPECTOR
8256-122	INSPECTOR, PULP
8256-126	INSPECTOR, SHEET PAPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	3	3	4	4	4	5	4	L-M457	I	4-3	6-3	91	0Y9
	4	4		3		4											

8258 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK, PULP AND PAPERMAKING

487, 666, 686, 886, 887

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in the converting of cellulose materials into pulp, and making and finishing paperboard. Worker functions include: feeding raw materials such as rags, logs and waste paper onto conveyors and into hoppers of machines; and handling and sorting rags according to grade and colour. Work activities include: cutting clips, elastic and buttons from rags; collecting waste paper and pulp from machines for reprocessing; cleaning pulp logs; freeing jammed conveyors; and performing general clean-up duties.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow simple instructions; eye-hand co-ordination and manual dexterity to use tools and work aids; eye-hand-foot co-ordination to move hand trucks or to climb and balance when working on machinery; strength to perform medium to heavy work requiring frequent lifting of objects weighing up to fifty pounds; agility to work in awkward positions, such as stooping and kneeling while handling water hose and other equipment to clean machines and work areas; adaptability to working in the presence of noise from machinery. Additionally, for 8258-110 LABOURER, RAGS: form perception to detect unwanted attachments such as buttons, clips and elastic which must be removed from rags before processing; colour discrimination to examine and segregate coloured rags.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: no specific education level; one week to one month on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter with initiative and supervisory potential may advance to 8250-114 FOREMAN, LABOURERS AND ELEMENTAL WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Some experienced workers may also advance to occupations such as machine operator helpers found in other chapters; for example, Chapter 8251, CELLULOSE PULP PREPARING OCCUPATIONS. Occupations in this chapter are considered entry jobs, and advancement for workers who demonstrate ability is normally to higher skilled occupations.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar skills within the chapter, or to other labouring and elemental occupations found in other chapters.

OCCUPATIONAL TITLES:

8258-110 LABOURER, RAGS
8258-114 RAG-THRASHER-AND-CUTTER MACHINE FEEDER
8258-118 GRINDER FEEDER
8258-122 BROKE HUSTLER
8258-126 CUTTERMAN, WET-MACHINE
8258-130 PULP-LOG RECLEANER
8258-134 SCREEN CLEANER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	4	4	5	M-H34	I56	2-1	2	31	23
		5					3		3	5	4		I456				

8261-B TEXTILE FIBRE PREPARING OCCUPATIONS 487, 585, 685, 686

WORK PERFORMED: This chapter includes occupations concerned with preparing natural and synthetic fibres for further processing by washing, mixing, blending, picking, carding, lapping, combing, drawing and sizing. Worker functions include: operating or tending a variety of textile machines to prepare fibres for other processing operations such as spinning, winding and weaving; and comparing processed materials with established standards to detect defects. Work activities include: turning valves to fill vats; threading materials through machine guides; moving controls to start, stop and regulate operation of equipment; observing processing operations to detect machine malfunctions, yarn breaks or other defects; piecing or tying together broken threads or yarn; weighing processed materials; and cleaning machines.

APTITUDES AND CAPACITIES: learning ability for occupations in Cluster B, to tend machines or help operators, following simple instructions; form perception to examine rovings or yarn for differences in consistency, and uniformity in the blending and mixing of fibres; eye-hand-finger co-ordination and manual dexterity to thread materials through machine guides and unclog or clean machines; finger dexterity to join ends of broken slivers or threads rapidly and uniformly or to feel materials to determine its texture or dryness; sufficient strength to perform light to medium work requiring frequent lifting of times weighing up to twenty-five pounds and adaptability to continual standing and walking; agility to work around machinery in awkward positions, such as stooping, kneeling and crouching; near and far visual acuity and broad field of vision for observing many threads on machines for consistency or breaks and for uniformity when blending fibres; capacity to working while exposed to continuous loud noise from machines; adaptability to working in close proximity to moving mechanical parts and continual exposure to dust, lint or fluff.

TRAINING AND ENTRY REQUIREMENTS: seven to nine ~~years~~ of general education; up to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in Cluster B may advance to occupations requiring higher skills within the cluster. Those who acquire additional training may advance to occupations in Cluster A. Workers in this cluster who have supervisory potential may advance to 8260-114 FOREMAN, TEXTILE FIBRE PREPARING OCCUPATIONS. See also Chapter 990, FOREMAN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer for workers in this chapter may be to occupations requiring similar skills within the chapter. Possibilities for transfer may also be to other appropriate occupations in Minor Group 826/827, TEXTILE PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8261-118	COTTON-BALL-MACHINE TENDER
8261-122	PICKER TENDER
8261-126	STAPLE-PROCESSING-MACHINE TENDER
8261-130	BLENDING-MACHINE TENDER
8261-134	CARDING-MACHINE TENDER
8261-138	CARD STRIPPER
8261-142	DRAWING-MACHINE TENDER
8261-146	FUR BLOWER
8261-150	FUR MIXER
8261-154	SIZING-MACHINE TENDER
8261-158	SLUBBER TENDER
8261-162	STRETCHING-MACHINE TENDER
8261-166	WASTE-MACHINE TENDER
8261-170	STOCK MIXER
8261-174	CHOPPING-MACHINE TENDER
8261-178	CRIMPING-MACHINE TENDER
8261-182	CRIMP SETTER
8261-186	WOOL OPENER AND DUSTER
8261-190	YARN SOAKER
8261-194	BREAKER FEEDER
8261-198	SLASHER-OPERATOR HELPER
8261-202	STAPLE CUTTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	3	3	5	5	L-M347	I-57	2	4-2	913	2Y3
			5			4		4	4	4							

8263-B TEXTILE SPINNING AND TWISTING OCCUPATIONS 685, 686

WORK PERFORMED: This chapter includes occupations concerned with spinning and twisting yarn, thread, twine or cordage to impart such characteristics as strength, bulk, texture and uniformity. Worker functions include: tending textile spinning and twisting machines; comparing materials produced with established standards to detect and rectify defects; and setting up and maintaining automatic machines that make fibre rope. Work activities include: installing and aligning dies and gears in rope-making machines; threading yarn, roving or sliver through machine guides; moving controls to start equipment; patrolling work area to detect yarn breaks and machine malfunctions; tying broken ends together; and removing full reels, bobbins or packages from machines.

APTITUDES AND CAPACITIES: learning ability to understand textile spinning and twisting machine operations and to apply techniques involved in setting up and tending equipment; **form perception to detect** defects in twisting and in consistency of textile threads; eye-hand-finger co-ordination and manual dexterity to install and align gears and dies in machines, or make adjustments and thread yarn ends through machine guides; finger dexterity to tie broken ends of textile thread rapidly and neatly, or to turn setscrews to vary actions of rope machines; sufficient strength to perform light to medium work requiring frequent lifting of items weighing up to twenty five pounds; adaptability to long periods of standing and walking; agility to work around machinery in awkward positions such as stooping, kneeling and crouching; good vision, requiring both near and far acuity in a broad field of vision, to observe many threads on machines for size, uniformity and breaks; capacity to work while exposed to continual loud noise from machines; adaptability to working where allergy-producing dusts from yarn or thread may be present.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; one to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Some workers in Cluster B may advance to other occupations requiring higher skills within the cluster. Workers in this chapter who have potential for supervision may advance to 8260-130 FOREMAN, TEXTILE SPINNING AND TWISTING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Although there are no established transfer patterns in the textile industry, some workers in Cluster B may transfer to other occupations within that cluster. With limited additional training, workers in this chapter may also transfer to appropriate occupations requiring similar basic skills in other chapters of Minor Group 826/827, TEXTILE PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8263-114	COVERING-MACHINE TENDER
8263-118	SPINNING-MACHINE TENDER
8263-122	STRAND-FORMING-MACHINE TENDER
8263-126	TWISTER TENDER
8263-130	YARN-TEXTURING-MACHINE TENDER
8263-134	ROPE TWISTER
8263-138	DOFFER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	5	3	3	3	5	5	L-M347	I-57	2	3-2	319	23Y
			5		4	4	4			4	4						

8265 - TEXTILE WINDING AND REELING OCCUPATIONS

664, 675, 682, 685, 686

WORK PERFORMED: This chapter includes occupations concerned with winding and reeling yarn, thread, rope, cloth and other textile products onto various forms such as beams, reels and bobbins. Worker functions include: tending or feeding winding or reeling machines; and comparing the characteristics of wound goods for defects to ensure acceptable standards are met. Work activities include: positioning full textile packages and empty take-up forms in machines; threading materials through tensioning devices and guides; moving controls to start and stop machines; observing operations to detect slubs, breaks or tangles; tying broken ends together; and doffing finished material from machines.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply instructions pertaining to textile winding and reeling operations; form perception to detect slubs, breaks, tangles or other defects during winding operations; eye-hand co-ordination to operate machine controls and to doff full packages of wound material; finger dexterity to thread yarn through machine guides and repair yarn breaks; manual dexterity and the ability to extend the hands and arms in any direction in order to handle machine controls, doff packages and use scissors, gauges and tools; sufficient strength to perform light to medium work, requiring the lifting of boxes, cones, reels and bobbins weighing up to fifty pounds, and the pushing of trucks, beams and creels weighing up to six hundred pounds; adaptability to continuous standing and walking while observing machine operations; near visual acuity to thread material through machine guides and to detect breaks, tangles and other defects; capacity to work while exposed to loud machine noises, mechanical hazards and textile dust.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: seven to nine years of general education; one week to one year of on-the-job training and related experience, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: With additional training, some workers in this chapter may advance to more skilled occupations within the chapter or to other appropriate textile processing occupations in Minor Group 826/827, TEXTILE PROCESSING OCCUPATIONS. Those with potential for supervision may advance to 8260-138 FOREMAN, TEXTILE WINDING AND REELING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within the chapter or to other appropriate occupations in Minor Group 826/827, TEXTILE PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8265-110	RUG-SETTER
8265-114	DRESSER
8265-118	WARPER TENDER, AUTOMATIC
8265-122	WARP BEAMER
8265-126	YARN-PLAITING-EQUIPMENT TENDER
8265-130	WARP-BEAMER HELPER
8265-134	LOOM-WINDER TENDER
8265-138	QUILLING-MACHINE TENDER AUTOMATIC
8265-142	ROVING WINDER, FIBERGLASS
8265-146	SKEINER
8265-150	SKEIN WINDER
8265-154	SPLICING-MACHINE TENDER
8265-158	SPOOLER
8265-162	THREAD WINDER
8265-166	YARN WINDER
8265-170	YARN WINDER, AUTOMATIC
8265-174	BATCHER
8265-178	LINE SPOOLER
8265-182	ROPE COILER
8265-186	SCRAY MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	5	4	3	3	4	5	L-M47	I57	3-2	5-2	319	23Y
			5		4	4		4		5	4						23

8267-A TEXTILE WEAVING OCCUPATIONS 280, 380, 582, 680, 682

WORK PERFORMED: This chapter includes occupations concerned with weaving plain or figured cloty, lace carpet or other fabrics on hand or machine looms. Worker functions include: setting up looms to produce cloth with specified patterns or weave; operating or tending looms and related weaving equipment; manipulating and twisting warp ends together preparatory to weaving operations; and comparing quality of goods being woven to detect flaws in material or defective loom operation. Work activities include: preparing jacquard pattern chains; installing and adjusting gears, cams, shuttles and other components in machines; moving controls to start, stop and regulate equipment; examining woven products for defects; and repairing flaws and breaks in yarn.

APTITUDES AND CAPACITIES: learning ability to understand the priciples and procedures of weaving, to apply this knowledge to the operation of weaving machines and looms and to understand pattern charts and oral or detailed written instructions; form perception to detect the need to replace worn cards in pattern chain, or possible machine malfunctions; eye-hand-finger co-ordination to make precise movements quickly and accurately to prevent or correct defective weaving, to set up and adjust weaving machines and to punch holes in loom pattern cards; finger dexterity to trace and quickly tie broken ends on loom beam to corresponding warp ends of loom harness and to set up and adjust weaving machines; manual dexterity to move the hands easily and skilfully to thread materials through machines guides and to install components, such as gears, cams and shuttles in looms; sufficient strength to perform generally light to medium work requiring frequent lifting of items up to twenty five pounds, and continual standing and walking to observe machine operations; agility to work around machinery in awkward positions such as stooping, kneeling, crouching and crawling; near and far visual acuity with a broad field of vision to observe many threads on machines for breaks or weaving defects; colour vision to detect defects in coloured pattern weaving and to ensure the joining together of many coloured threads in their proper sequences; spatial perception to set up weaving machines and looms according to pattern charts or customer specifications to produce cloth of specified size, style or pattern.

TRAINING AND ENTRY REQUIREMENTS: nine to ten years of general education; six months to two years of on-the-job training and related experience in less skilled weaving occupations.

ADVANCEMENT POSSIBILITIES: Advancement for workers is normally to higher skilled occupations within the cluster. Experienced workers with supervisory potential may advance to 8260-134 FOREMAN, TEXTILE WEAVING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within their individual cluster. Some transfer possibilities may also be to appropriate occupations requiring similar basic skills and experience throughout Minor Group 826/827 TEXTILE PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8267-110 BRAID-PATTERN SET-UP MAN
8267-114 LOOM-PATTERN CHANGER
8267-118 HARNESS PREPARER
8267-122 HEDDLES TIER, JACQUARD LOOM
8267-126 DRAWING-IN-MACHINE OPERATOR
8267-130 PINNING-MACHINE OPERATOR
8267-182 NEEDLE-LOOM OPERATOR
8267-186 WEAVER, CARPET
8267-190 WEAVER, CLOTH
8267-194 WEAVER, JACQUARD-LOOM
8267-226 JACQUARD-CARD CUTTER
8267-230 PATTERN PUNCHER
8267-134 HARNESS MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	3	3	5	4	L-M347	I57	4-3	7-4	91	YO
		3		4		5		4		4	5						

8267-B TEXTILE WEAVING OCCUPATIONS 684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with weaving plain or figured cloth, lace, carpet or other fabrics on hand or machine looms. Worker functions include: setting up looms to produce cloth with specified patterns or weave; operating or tending looms and related weaving equipment; manipulating and twisting warp ends together preparatory to weaving operations; and comparing quality of goods being woven to detect flaws in material or defective loom operation. Work activities include: preparing jacquard pattern chains; installing and adjusting gears, cams, shuttles and other components in machines; moving controls to start, stop and regulate equipment; examining woven products for defects; and repairing flaws and breaks in yarn.
APTITUDES AND CAPACITIES: learning ability to understand the principles and procedures of weaving, to apply this knowledge to the operation of weaving machines and looms and to understand pattern charts and oral or detailed written instructions; form perception to detect slight differences in cloth patterns which would indicate the need to replace worn cards in pattern chain, or possible machine malfuncations; eye-hand-finger co-ordination to make precise movements quickly and accurately to prevent or correct defective weaving, to set up and adjust weaving machines and to punch holes in loom pattern cards; finger dexterity to trace and quickly tie broken ends of yarn or thread using a weaver's knot, to join warp ends on loom beam to corresponding warp ends of loom harness and to set up and adjust weaving machines; manual dexterity to move the hands easily and skilfully to thread materials through machines guides and to install components, such as gears, cams and shuttles in looms; sufficient strength to perform generally light to medium work requiring frequent lifting of items up to twenty five pounds, and continual standing and walking to observe machine operations; agility to work around machinery in awkward positions such as stooping, kneeling, crouching and crawling; near and far visual acuity with a broad field of vision to observe many threads on machines tor breaks of weaving defects; colour vision to detect defect in coloured pattern weaving and to ensure the joining together of many coloured threads in their proper sequences.
TRAINING AND ENTRY REQUIREMENTS: seven to nine years of general education; up to six months of on-the-job training.
ADVANCEMENT POSSIBILITIES: Advancement is normally to higher skilled occupation within the cluster, or from this cluster to Cluster A. Experienced workers with supervisory potential may advance to 8260-134 FOREMAN, TEXTILE WEAVING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.
TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster. Some transfer possibilities may also be to appropriate occupations requiring similar basic skills and experience throughout Minor Group 826/827 TEXTILE PROCESSING OCCUPATIONS.
OCCUPATIONAL TITLES:
8267-138 DRAWER-IN, LOOM
8267-142 WARP-TYING-MACHINE TENDER
8267-146 PATTERN CHANGER, JACQUARD LOOMS
8267-198 WEAVER, HAND
8267-202 AXMINISTER-CARPET WEAVER
8267-150 LEASE MAN
8267-154 WARP TIER-IN
8267-158 LEASING-MACHINE TENDER
8267-206 BRAIDING-MACHINE TENDER
8267-162 DRAWER-IN-LOOM HELPER
8267-234 JACQUARD-CARD LACER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	$\overline{3}$	4	$\overline{3}$	$\overline{3}$	$\overline{3}$	5	4	L-M347	I57	3-2	4-2	913	Y23
	3		5		$\underline{4}$	5	$\underline{4}$	$\underline{4}$	$\underline{4}$		5						

8271-A KNITTING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with knitting fabrics and articles such as lace, hosiery, sweaters and netting. Worker functions include: setting up, operating or tending one or more knitting machines; comparing quality of knitted goods to detect flaws in material or defective knitting machine operation; compiling information from work orders to determine machine set-up requirements; and manipulating yarn ends through machine needles and guides. Work activities include: building pattern chains and installing them in automatic knitting machines; positioning cones or spools of yarn on machine spindles; moving controls to start and stop equipment; examining knit goods for holes, runs, picks and other defects; tying ends of broken yarn together; and adjusting and repairing knitting machines.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the principles of knitting machine operation, and carry out the setup and repair of the machines in accordance with well define guidelines; spatial perception to visualize arrangement of pattern plates on chains to achieve correct machine operation for specified product and to determine adjustments or repairs required to correct defective knitting; form perception to make visual comparisons of slight differences in knitting pattern of sample to determine if knitting machines are set up correctly; eye-hand-finger co-ordination to set up and adjust knitting and looping machines; finger dexterity to adjust machine parts such as gears, cams and brakes and to replace and align worn, bent or broken looper points and needles; manual dexterity to repair or replace machine parts and to change gears that control automatic feeding mechanism; sufficient strength to perform medium work requiring frequent lifting of items weighing up to twenty pounds and frequent standing and walking to observe knitting or looping operations to verify machine setup; agility to work in awkward positions such as stooping, kneeling and crouching while setting up or repairing machines; physical ability to extend the hands and arms in any direction when setting up, repairing or adjusting machines and equipment; good hearing to listen to machine sounds and detect malfunctions; near and far visual acuity, to set up or repair machines and equipment and to synchronize action of needles and thread in the looping and sewing process; good colour vision to match yarn shades, when involved in colour-patterned knitting machinery; capacity to work while exposed to continual loud noise from knitting machinery; adaptability to conditions involving injury, such as cuts and bruises from moving parts of machines; adaptability to atmospheric conditions involving exposure to dusts and lint.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten or eleven years of general education; a three year vocational course in textiles and three months of on-the-job training; or one to two years of related experience in lesser skilled occupations and from three months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Those with supervisory potential may advance to 8260-126 FOREMAN, KNITTING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter are limited, but may be to other occupations requiring similar skills within the individual clusters, or in Minor Group 826/827 TEXTILE PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8271-110 KNITTING-PATTERN SET-UP MAN
8271-114 KNITTING-MACHINE FIXER
8271-118 LOOPER FIXER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	2	4	3	3	3	4	4	M-3467	I-567	4	7-6	910	OY
										5							

8271-B KNITTING OCCUPATIONS

382, 585, 665, 682, 685, 686

WORK PERFORMED: This chapter includes occupations concerned with knitting fabrics and articles such as lace, hosiery, sweaters and netting. Worker functions include: setting up, operating or tending one or more knitting machines; comparing quality of knitted goods to detect flaws in material or defective knitting machine operation; compiling information from work orders to determine machine set-up requirements; and manipulating yarn ends through machine needles and guides. Work activities include: building pattern chains and installing them in automatic knitting machines; positioning cones or spools of yarn on machine spindles; moving controls to start and stop equipment; examining knit goods for holes, runs, picks and other defects; tying ends of broken yarn together; and adjusting and repairing knitting machines.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the principles of knitting and the operation of knitting machines and related equipment; spatial perception to set machine controls to achieve desired product and to make the necessary adjustments during operations to ensure proper quality of product; form perception to detect slight differences in knitting pattern which would determine need for machine adjustments; eye-hand-finger co-ordination to make precise movements quickly and accurately to prevent defective knitting or looping; finger dexterity to thread ends of yarn through machine guides, tension devices and needle guides and to tie broken ends of yarn together; manual dexterity to install spools on machine and to replace defective needles, using hand tools; sufficient strength to perform generally light to medium work requiring frequent lifting of items weighing up to twenty pounds with the occasional lifting of fifty pounds and frequent standing and walking to observe machine operations; physical ability to extend the hands and arms in any direction when adjusting machines and equipment and threading yarn through machine guides; near and far visual acuity to observe machine operations for malfunction or breaks in yarn, to tie ends of yarn together or to thread yarn through machine guides; colour vision to match yarn shades when observing colour-patterned knitting for defects; capacity to work while exposed to continual loud noise from knitting machinery; adaptability to conditions involving physical hazards such as injury from moving parts of machines and to atmospheric conditions involving exposure to dusts and lint.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to nine years of general education; up to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in Cluster B who receive additional training may advance to 8271-110 KNITTING-PATTERN SET-UP MAN, 8271-114 KNITTING-MACHINE FIXER, 8271-118 LOOPER FIXER, and to supervisory positions as 8260-126 FOREMAN, KNITTING OCCUPATIONS.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter are limited, but may be to other occupations requiring similar skills within the individual clusters, or in Minor Group 826/827 TEXTILE PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8271-122	LINKS-MACHINE KNITTER
8271-126	HOSIERY-KNITTING-MACHINE TENDER
8271-130	CROCHETER
8271-134	LOOPER
8271-138	SEAMLESS-HOSIERY KNITTER
8271-142	SURGICAL-PAD KNITTER
8271-146	WARP-KNITTING-MACHINE TENDER
8271-150	KNITTER, FULL-FASHIONED GARMENT
8271-154	NET-KNITTING-MACHINE OPERATOR
8271-158	KNITTING-MACHINE TENDER
8271-174	KNITTING-MACHINE-TENDER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	$\underline{4}$	$\underline{3}$	5	$\underline{3}$	$\underline{3}$	$\underline{3}$	4	5	L-M47	I-567	3-2	5-2	913	2Y0
	4				$\underline{4}$			$\underline{4}$		5	4						2Y3

8273-B TEXTILE BLEACHING AND DYEING OCCUPATIONS

582, 685

WORK PERFORMED: This chapter includes occupations concerned with bleaching and dyeing cloth, thread, yarn or other textile products. Worker functions include: tending a variety of textile dyeing, bleaching and washing equipment; working to precise standards when preparing dye formulas to produce specified colours; comparing materials from each finished lot to standards to detect colour variations; and co-ordinating production schedules in dyeing department to ensure efficient operations. Work activities include: loading and unloading equipment with materials to be dyed, bleached, washed or finished; mixing dyes, cleaning agents or finishing chemicals according to specifications; setting temperature or timing devices; and turning valves to fill or drain tanks.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the principles of dyeing textile materials, the operation of dyeing equipment and the correct interpretation of oral and written instructions; form perception to make visual comparisons of slight differences in finishes which would indicate the need to alter formulas; eye-hand-finger co-ordination to make precise movements quickly and accurately to prevent defective dyeing or bleaching, by turning valves or moving levers to control the flow of solutions or materials; manual dexterity to sew cloth ends to lead cloth in dyeing machine to form continuous length and to feed and remove materials from equipment; colour discrimination required to a significant degree in the following occupations: 8273-118 DYE-TUB TENDER, 8273-126 CLOTH DYER and 8273-146 YARN DYER to ensure conformance to standards; sufficient strength to perform generally light to medium work requiring frequent lifting of items weighing up to twenty five pounds and continual standing and walking to observe equipment operations to detect improper dyeing, bleaching, washing or singeing; physical ability to extend the hands and arms in any direction while mixing dye ingredients or working around dyeing equipment; good vision, both near and far acuity, to observe materials in process, and to read gauges and thermometers to determine required adjustments to ensure conformance to standards; capacity to work while exposed to continual heat and humidity from steam and hot water involved in the dyeing, bleaching and washing operations; adaptability to physical hazards and atmospheric conditions involving burns from steam and hot water and continual exposure to fumes and odors.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to nine years of general education; up to one year of on-the-job training, depending on the complexity of the process involved.

ADVANCEMENT POSSIBILITIES: Workers in Cluster B may advance to occupations requiring higher skills within that cluster. Those who acquire additional training may also advance to 8273-110 MASTER DYER. Experienced workers with supervisory potential may advance to 8260-110 FOREMAN, TEXTILE BLEACHING AND DYEING OCCUPATIONS.

TRANSFER POSSIBILITIES: Transfer possibilities are limited, however, because of similarity of skills some workers may transfer to occupations in Minor Group 616, APPAREL AND FURNISHINGS SERVICE OCCUPATIONS, such as 6161-110 WASHING-MACHINE TENDER or 6169-110 DYER.

OCCUPATIONAL TITLES:

8273-114	DYE-RANGE OPERATOR
8273-118	DYE-TUB TENDER
8273-122	BLEACHER
8273-126	CLOTH DYER
8273-130	KIER-BOILER TENDER
8273-134	RAW-STOCK DYER
8273-138	SINGEING-AND-BOILING-MACHINE TENDER
8273-142	TEXTILE WASHER
8273-146	YARN DYER
8273-150	RINSER
8273-154	TWINE DYER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	4	4	L-M47	I347	3-2	5-2	931	2Y
			5			5				5	3		I4				2Y3

8275-B TEXTILE FINISHING AND CALENDERING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with calendering, shrinking, stretching, drying, aging, coating or otherwise finishing textiles. Worker functions include: operating or tending a variety of textile finishing machines and equipment; and comparing characteristics of cloth, yarn, felt, impregnated fabric or other finished products to specified standards. Work activities include: threading fabric through machine rollers; sewing ends of fabric together to form continuous lengths; turning valves to admit finishing solutions; moving controls to set or adjust temperature, tension, and speed of materials passing through equipment; removing processed materials; and making minor adjustments and repairs to machines.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply a variety of oral and written instructions in order to operate and tend textile finishing machines; form perception to make visual comparisons of slight differences in coating solutions applied on textile materials; eye-hand-finger co-ordination to turn valves and move levers to regulate or synchronize the movement of materials through machines; manual dexterity to move the hands easily and skilfully when installing machine components; sufficient strength to perform generally light to medium work and to continually stand and walk to observe machine operations; physical ability to extend the hands and arms in any direction while working around machines, and to feel finished materials to determine that texture or dryness complies with known standards; good vision, requiring both near and far acuity, to observe materials for defects in finish; adaptability to work while exposed to continual loud noise from finishing machines and equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: seven to nine years of general education; up to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this cluster may advance to higher skilled occupations within their individual cluster, or from Cluster B to A. Some workers may advance to 8276-130 FABRIC INSPECTOR, and those with supervisory potential to 8260-118 FOREMAN, TEXTILE FINISHING AND CALENDERING OCCUPATIONS.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within their cluster. Other transfer possibilities may be to occupations in other chapters, for example, 8273-142 TEXTILE WASHER, 8279-126 CLOTH-PROCESSING-RANGE TENDER, and 8173-146 SPREADER MAN.

OCCUPATIONAL TITLES:

8275-126	AUTOCLAVE TENDER
8275-130	YARN CONDITIONER
8275-134	AGER TENDER
8275-138	CALENDER-MACHINE TENDER
8275-142	CAN TENDER
8275-146	CARBONIZER TENDER
8275-150	CARPET-DRYING-MACHINE TENDER
8275-154	CLOTH SHRINKER
8275-158	DRYING-MACHINE TENDER
8275-162	FULLER
8275-166	MERCERIZER
8275-170	NAPPER TENDER
8275-174	SPRAYING-MACHINE TENDER
8275-178	STEAMER TENDER
8275-182	TAR-MACHINE TENDER
8275-186	YARN MERCERIZER
8275-190	BOARDER
8275-194	BREAKER TENDER
8275-198	CONTINUOUS-PRESS TENDER
8275-202	CRABBING-MACHINE TENDER
8275-206	DECATING-MACHINE TENDER
8275-210	DRYING-MACHINE TENDER, YARN
8275-214	EMBOSSING-CALENDER TENDER
8275-218	EXTRACTOR-MACHINE TENDER
8275-222	FELT DRIER
8275-226	PILE-FINISHING-MACHINE TENDER
8275-230	PLEATER
8275-234	RAW-STOCK DRIER
8275-238	SHEARING-MACHINE TENDER
8275-242	SPRAY-COATING-MACHINE TENDER
8275-246	STRETCHING-MACHINE TENDER
8275-248	TENSION-DRYING-MACHINE TENDER
8275-250	TENTER-MACHINE TENDER
8275-254	TEXTURING-MACHINE TENDER
8275-258	TUMBLER TENDER
8275-262	WEFT STRAIGHTENER
8275-266	WRINGER TENDER
8275-270	YARN DRIER
8275-274	YARN FINISHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	4	5	L-M47	I5	3-2	3-2	913	Y230
			5		3	4			4	5	4						Y23

8276 - INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, TEXTILE PROCESSING

267, 384, 387, 484, 487, 584, 586
587, 686, 687

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in textile processing. Worker functions include: comparing characteristics or composition of textile materials and products to specified standards; handling fabric goods, scales, rules, magnifiers and inspection devices; and compiling and recording inspection or test results. Work activities include: inspecting cloth, narrow fabrics, yarn, hosiery or carpets for weaving or finishing defects; performing physical or chemical tests on samples to determine colour fastness, shrinkage, tensile strength and other characteristics; collecting and labelling samples; and grading textiles according to colour, size and quality.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and carry out testing, inspecting, grading and sampling procedures for wool, woven cloth, fabrics, yarn and fibres, hosiery and other textiles, to ensure conformance to standard specifications, which are normally plant quality standards; form perception to note slight differences in weaving, style or thickness of yarn, to examine hosiery for defects in knitting, seaming, looping or dyeing and fabrics for grease spots, slubs, mispicks, uneven selvages and irregularities in colour, which would indicate the need to adjust machines or equipment, to correct defects or reclassify grades of materials or products; eye-hand-finger co-ordination and finger dexterity to manipulate textile samples while inspecting them for defects or when subjecting the samples to quality-control tests; manual dexterity to operate a variety of testing and inspection machines such as stretch-flex machines, stitch-counting machines and break testers, to position textile materials on inspection equipment and to feed or remove samples from test equipment and fixtures; colour discrimination to distinguish differences in shades and colours of printed or woven materials from standards or to match materials by colours; sufficient strength to perform generally light work requiring frequent lifting of items up to fifteen pounds and frequent standing and walking; physical ability to extend the hands and arms in any direction when positioning materials for inspection, placing textile samples in or on test equipment or matching materials by colour or type; near and far visual acuity to inspect materials or products for defects, count number of threads per inch in fabric, and to read guages and markings on test equipment or instruments; capacity to work while exposed to continual loud noise from textile machinery.

TRAINING AND ENTRY REQUIREMENTS: 9 to 10 years of general education; on-the-job training from a short demonstration up to 2 years, with varying periods of related experience necessary for some occupations.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to occupations within this chapter that require higher levels of skills. Some workers who qualify through additional training or vocational courses may advance to 2117-268 TEXTILE TECHNICIAN. Those who have supervisory potential may advance to 8260-122 FOREMAN, TEXTILE INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS. See also chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations within this chapter that require similar skills, or to some occupations in other chapters such as Chapter 8176, INSPECTING, TESTING AND SAMPLING OCCUPATIONS: CHEMICAL, PETROLEUM, RUBBER, PLASTIC AND RELATED MATERIALS PROCESSING, where only short training periods may be required.

OCCUPATIONAL TITLES:

8276-110 TEXTILE TESTER
8276-114 SWATCH CHECKER
8276-118 WOOL-FLEECE-SORTER-AND GRADER
8276-122 CLOTH GRADER
8276-126 QUALITY-CONTROL TESTER
8276-130 FABRIC INSPECTOR
8276-134 PRE-SHRINKING PROCESS TESTER
8276-138 ROVING-WEIGHT GUAGER
8276-142 WEAVING INSPECTOR
8276-146 HOSIERY PAIRER
8276-150 INSPECTOR, TEXTILE PRODUCTS
8276-154 WARP-TENSION TESTER
8276-158 INSPECTOR, TRIMMING MATERIAL
8276-162 KNITTED-FABRIC INSPECTOR
8276-166 STOCKING INSPECTOR
8276-170 SAMPLE MAN
8276-174 SHADE MATCHER
8276-178 SKEIN-YARN EXAMINER
8276-182 YARN INSPECTOR
8276-186 CLOTH SORTER
8276-190 GREIGE-CLOTH EXAMINER
8276-194 NARROW-FABRICS EXAMINER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	4	4	4	4	5	3	L47	I5	3-2	6-2	139	OY29
	3				2			3	3		4						

8278 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK, TEXTILE PROCESSING

686, 687, 886, 887

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in the processing of textile fibres into yarn or thread, and the weaving, knitting, dyeing and finishing of fabrics. Worker functions include: feeding materials into spinning, weaving, dyeing, washing or similar processing machines; and handling rolls of cloth, bobbins, shuttles, yarn, dyes and other textile-processing supplies. Work activities include: transporting materials between workers or departments; stripping and polishing bobbins for further use; salvaging yarn and cloth for reuse; and cleaning machines and work areas.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and carry out simple oral or written instructions to feed, doff and help in operating textile processing machines, and to write identifying information such as weight, number or type of textile material on tags or slips; form perception to carry out basic tasks, such as examining yarn for surface defects, unravelling portion of fibreglass sliver to verify location of end, trimming false selvage from edge of cloth and scanning wool rags for hardware such as buttons and snaps; eye-hand co-ordination to offbear material from textile machines and equipment; finger dexterity to replace or change travellers on ring-spinning frames and to thread yarn through guides or tie broken ends of yarn together; manual dexterity to move hands and arms easily and skilfully when cleaning and oiling textile processing machines and equipment or when loading and unloading material-handling conveyances used to transport materials and supplies between work areas; physical fitness and sufficient strength to perform light to medium work requiring frequent lifting of items weighing up to twenty pounds and the occasional lifting of fifty to sixty pounds; capacity for continual standing and walking to monitor textile processing equipment; capacity to work while exposed to continual loud noise from textile processing machines and equipment, and in an atmosphere containing dust, lint and fluff.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: six to eight years of general education; on-the-job training ranging from a short demonstration up to one month.

ADVANCEMENT POSSIBILITIES: Workers in this chapter are employed primarily in entry occupations and they normally advance to higher skilled work in Minor Group 826/827, TEXTILE PROCESSING OCCUPATIONS.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter are limited, but may be to other occupations requiring skills within the chapter, or in Minor Group 826/827 TEXTILE PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8278-110	CLOTH FEEDER
8278-114	CLOTH TURNER
8278-118	DYE-HOUSE HELPER
8278-122	LABOURER, WOOLEN MILL
8278-126	ROLL-MAT-MACHINE FEEDER
8278-130	TRAY DRIER
8278-134	UTILITY MAN, FELT GOODS
8278-138	WASTE-MACHINE FEEDER
8278-142	YARN SALVAGER
8278-146	YARN STRIPPER
8278-150	BOBBIN PROCESSOR
8278-154	CLOTH FRAMER
8278-158	CREELER
8278-162	PICK REMOVER
8278-166	RAG-SORTER-AND-CUTTER
8278-170	SKEINER, HAND
8278-174	TEXTILE-MACHINE CLEANER
8278-178	TRAVELLER CHANGER
8278-182	CLIPPER, MACHINE
8278-186	CAN DOFFER
8278-190	KAPOK BLOWER
8278-194	SHUTTLE FILLER
8278-198	ROLLER CLEANER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	4	4	5	L-M4	I57	1	2-1	13	23
		5						3	3	5	4						

8293 - TOBACCO PROCESSING OCCUPATIONS 386, 684, 685

WORK PERFORMED: This chapter includes occupations concerned with processing tobacco and making cigars, cigarettes and other tobacco products. Workers functions include: tending tobacco processing equipment and machines that blend, treat, moisten, destem, strip, cut or shred tobacco leaves and produce cigars, cigarettes and plugs or twists of smoking or chewing tobacco; and manipulating tobacco leaves to handform cigars or twists of chewing tobacco. Work activities include: selecting and mixing various types and grades of tobacco to produce specified blends; observing operations of machines and equipment to ensure processing according to specifications; turning dials or valves and moving levers to set or adjust temperature, speed, tension or pressure of processing equipment; rolling cigars by hand; and weighing tobacco products.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply a variety of written and oral, detailed but uninvolved, instructions to operate tobacco processing machines and equipment and to recognize essential tobacco characteristics; form perception to make visual comparisions of slight differences in texture when blending tobacco, and variations in size or shape of tobacco products; eye-finger co-ordination to turn dials or valves and to move levers to control machine operations; manual dexterity to move the hands easily and skillfully when positioning cigar wrapper leaf over die of machine to obtain maximum product from each leaf, when loading and unloading machines and when making cigars by hand; colour discrimination to a significant degree by 8293-110 TOBACCO BLENDER to sort tobacco into types according to the colour or shade of the leaf; physical fitness and sufficient strength to perform generally light to medium work requiring frequent lifting of items weighing up to twenty-five pounds with the occasional lifting of fifty pounds and frequent standing and walking to observe machine operations; physical ability to extend the hands and arms in any direction when adjusting machines and equipment and to feel tobacco leaves to determine that moisture content is sufficient to permit the handling of the leaves without damage; near visual acuity while sorting and grading tobacco or while examining and repairing damaged or defective cigars; capacity to work while exposed to continual loud noise from tobacco processing machines and related equipment; adaptability to working where strong tobacco odours are present.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: seven to nine years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 8290-118 FOREMAN, TOBACCO PROCESSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfers may be to other occupations requiring similar skills within this chapter.

OCCUPATIONAL TITLES:

8293-110	TOBACCO BLENDER
8293-114	BLENDING-LINE ATTENDANT
8293-118	CASING COOKER
8293-122	CASING-MACHINE TENDER
8293-126	TOBACCO-CONDITIONER TENDER
8293-130	DRYER TENDER
8293-134	STEM-FLATTENING-MACHINE TENDER
8293-138	STRIPPING-MACHINE TENDER
8293-142	TOBACCO-CUTTING-MACHINE TENDER
8293-162	CIGAR-MAKER, HAND
8293-164	CIGARETTE-MACHINE TENDER
8293-166	CIGAR MAKER, MACHINE
8293-170	PATCH WORKER
8293-174	TWISTER, HAND
8293-178	PLUG-CUTTING-MACHINE TENDER
8293-182	PLUG-MOULDER, MACHINE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPTS.
	4	4	5	4	4	5	4	4	3	5	5	L-M47	I5	3-2	5-2	913	2Y
			4		3	4			4	4	3						23Y

8295 - HIDE AND PELT PROCESSING OCCUPATIONS 380, 684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with processing hides, pelts and skins to make leather stock and finished furs. Worker functions include: tending machines or equipment to tan and process articles; and manipulating knives, brushes and scrapers. Work activities include: moving controls to start and stop machines; trimming or scraping undesirable portions from hides; treating hides and skins in chemical solutions to cure, unhair, pickle, dye, oil or tan them; stretching, softening and dressing pelts; buffing leather; plucking and shearing fur; and examining finished products for defects.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply work instructions pertaining to hide and pelt processing; form perception to examine hides and skins for cuts, blemishes, tears and other defects; eye-hand co-ordination to position and guide hides and skins through various processing machines; finger dexterity to perform such activities as pulling wool from sheep pelts, and applying tints and dyes to tips of guard hairs, using brush; manual dexterity, and the ability to extend the hands and arms in any direction when trimming, fleshing and handling hides and skins; colour discrimination for occupation 8295-136 FUR BLENDER to apply appropriate dye or tint, and for occupations 8295-150 WOOL PULLER for sorting wool by colour; physical fitness and sufficient strength to perform light to medium work, requiring the lifting of wet and dry hides, skins and pelts weighing up to fifty pounds; near visual acuity to avoid damaging hides, skins and pelts when using knife; when examining them for defects; and when verifying their thickness; capacity to work in generally unpleasant conditions such as wetness and odours from hides and chemical solutions or dust from buffing operations; and to adapt to monotony of routine work; adaptability to working where there are a variety of hazards, such as exposure to moving machine parts, slips and falls, chemical burns, and knife cuts that may become infected.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: seven to ten years of general education; one to six months of on-the-job training, depending on the complexity of the work.

ADVANCEMENT POSSIBILITIES: With additional training, some of the workers in this chapter may advance to more skilled occupations within the chapter, or to appropriate occupations in Chapter 8296, INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, PROCESSING, N.E.C. Those who are experienced and have potential for supervision may advance to 8290-110 FOREMAN, HIDE AND PELT PROCESSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within the chapter.

OCCUPATIONAL TITLES:

8295-110	SPLITTER
8295-114	HIDE AND SKIN PREPARER
8295-118	PELT DRESSER
8295-122	FLESHER, HAND
8295-124	FUR PLUCKER
8295-126	FUR-FLOOR WORKER
8295-130	LEATHER STRETCHER
8295-134	SHAVING-MACHINE TENDER
8295-136	FUR BLENDER
8295-138	MEASURING-MACHINE TENDER
8295-142	BUFFER, LEATHER
8295-146	PELT STRETCHER
8295-150	WOOL PULLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	5	3	4	3	5	5	L-M47	I67	3-2	4-2	193	20Y
			5		4	4	4	3		4	3						23Y
											4						

8296-B INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, PROCESSING, N.E.C. 387, 587

WORK PERFORMED: This chapter includes occupations concerned with quality control activities in the processing of a variety of materials or products such as tobacco, hides and pelts. Worker functions include: analyzing data obtained by examination of material to determine type or method of further processing; comparing products to detect flaws in material or defective machine operation; compiling test data and grading information; and handling samples or products during inspection or grading procedures. Work activities include: weighing and testing tobacco to determine quality and moisture content; and examining and testing cigarette wrapping and packaging material to assure conformance to company standards.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply sorting, grading and inspecting procedures and ability to determine the potential use of leather and wool pelts in finished products; form perception to observe details to grade hides and pelts; eye-hand co-ordination and manual dexterity to effectively manipulate and inspect hides; near visual acuity to detect minute defects in hides and pelts;colour discrimination to distinguish variations in colouring and shades of hides and pelts; strength to perform medium to heavy work frequently requiring the lifting and carrying of bundles of hides or pelts weighing up to fifty pounds; agility to work in kneeling or crouched positions when examining hides stretched out on floors; adaptability to working in damp and humid conditions while exposed to the noxious odours of hides.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; two to six months of on-the-job training; up to one year as a tannery worker.

ADVANCEMENT POSSIBILITIES: Experienced workers in this cluster with supervisory potential may advance to appropriate occupations in Unit Group 8290, FOREMEN, OTHER PROCESSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifcations profiles. Limited possibilities may also exist for workers in Cluster B to advance to 8296-114 BLUE-LEATHER GRADER.

TRANSFER POSSIBILITIES: Workers in Cluster B may, with limited additional training, transfer to some occupations in Chapter 8295, HIDE AND PELT PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8296-122 LEATHER SORTER
8296-134 HIDE-AND-PELT INSPECTOR
8296-138 WOOL-AND-PELT GRADER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	4	4	4	4	5	3	M-H347	I-47	3-2	4	13	OY2
	3										4						

8296-C INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, PROCESSING, N.E.C.

387, 487, 587, 687

WORK PERFORMED: This chapter includes occupations concerned with quality control activities in the processing of a variety of materials or products such as tobacco, hides and pelts. Worker functions include: analyzing data obtained by examination of material to determine type or method of further processing; comparing products to detect flaws in material or defective machine operation; compiling test data and grading information; and handling samples or products during inspection or grading procedures. Work activities include: weighing and testing tobacco to determine quality and moisture content; and examining and testing cigarette wrapping and packaging material to assure conformance to company standards.

APTITUDES AND CAPACITIES: Workers in this cluster require:learning ability to understand and apply inspecting and testing procedures used in tobacco processing; numerical ability to accurately compute average weight and moisture content of tobacco and tobacco products; form perception to detect deviations from colour and quality standards; eye-hand-finger co-ordination to handle small amounts of tobacco or when inspecting cigarettes and cigars; strength to do very light to medium work frequently involving lifting, handling and carrying products which vary in weight from a few ounces to twenty pounds; near visual acuity and good colour vision to detect flaws, impurities and colour variations; adaptability to work in close proximity to noisy machines.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: seven to nine years of general education; one to three months of on-the-job training; three to six months in other occupations in a tobacco processing plant.

ADVANCEMENT POSSIBILITIES: Experienced workers in this cluster with supervisory potential may advance to appropriate occupations in Unit Group 8290, FOREMEN, OTHER PROCESSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: Workers in Cluster C may transfer to some occupations in Chapter 8293, TOBACCO PROCESSING OCCUPATIONS.

OCCUPATIONAL TITLES:

8296-118	CIGARETTE TESTER
8296-126	HOGSHEAD INSPECTOR
8296-130	CIGARETTE INSPECTOR
8296-142	CIGAR INSPECTOR
8296-146	MOISTURE-CONTENT TESTER
8296-154	TOBACCO-SAMPLE PULLER

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in the processing of a variety of materials and products such as hides and pelts, tobacco and feathers. Worker functions include: feeding or offbearing materials from machines that wash, dry, or condition them, or convey them to other areas for further processing or storage; and handling materials or products. Work activities include: spreading, drying and trimming hides; hanging sheep-skins in steamrooms; shoveling washed wool into driers; counting and tying hides into bundles; cleaning vats, tanks, drums and tannery walls and floors; hanging bundles of tobacco leaves on chain conveyors; dumping tobacco into chutes or hoppers of machines; removing foreign material from tobacco; and washing and drying feathers and transferring them to storage bins.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand simple procedures and carry out uninvolved oral or written instructions; eye-hand-finger co-ordination to make precise movements quickly and accurately when feeding or offbearing materials from machines and equipment; manual dexterity to move the hands easily and skilfully to perform a variety of tasks involving frequent handling and placing of materials; colour discrimination, to a significant degree, for occupation 8298-114 LABOURER, TOBACCO PROCESSING for removing off-colour tobacco passing along a conveyor; physical fitness and sufficient strength to perform light to heavy work with frequent lifting of items weighing from five up to fifty pounds; capacity for continual standing and walking; ability to perform tasks involving frequent stooping when feeding, loading or unloading processing machines and equipment; near and far visual acuity for tasks such as trimming ragged edges or thin areas and brand marks from hides, removing stems and foreign material from tobacco as it moves along a conveyor or sorting and weighing feathers; capacity to work while exposed to wet and humid conditions in certain plant areas of hide, tobacco or feather processing operation; adaptability to working conditions involving continual noise from machines and hazards such as proximity to operating machinery, fumes and dust.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: six to eight years of general education; on-the-job training ranging from a short demonstration for some occupations and up to one month for others.

ADVANCEMENT POSSIBILITIES: Workers in this chapter are employed primarily in entry occupations, and with experience may advance to higher skilled occupations in Minor Group 829, OTHER PROCESSING OCCUPATIONS.

TRANSFER POSSIBILITIES: Transfer of workers in this chapter may be to other occupations in labouring and elemental work in other chapters.

OCCUPATIONAL TITLES:

8298-110	LABOURER, LEATHER PROCESSING
8298-114	LABOURER, TOBACCO PROCESSING
8298-118	FEATHER WASHER-AND-DRYER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	$\underline{3}$	4	$\underline{3}$	4	4	L-H347	I4567	2-1	2	319	23Y
		5	5			4	$\underline{4}$		$\underline{4}$		5						
											$\underline{3}$						

8311 - TOOL-AND-DIE MAKING OCCUPATIONS 280, 281, 380, 381

WORK PERFORMED: This chapter includes occupations concerned with making and repairing custom-made, prototype or special tools, dies, jigs, fixtures or gauages. Worker functions include: working to close tolerences when machining, fitting and assembling workpieces; analyzing information from drawings, models or specifications to plan layouts and sequence of operations; compiling dimensional data from specifications to determine tolerences, limits or standards; and setting up and operating a variety of machine tools such as lathes, shapers, grinders, and milling machines. Work activities include; making mathematical computations when measuring and laying out metal stock; heat treating parts; verifying dimensions of workpieces; using precision measuring devices; testing completed tools or fixtures for proper operation; and dismantling and repairing defective items.

APTITUDES AND CAPACITIES: Tool and Die Makers require: learning ability to understand and apply the knowledge and techniques of tool and die manufacture, metal properties, machining methods, blueprint reading and shop mathematics, and reasoning ability to improvise and design special devices required for a particular industrial process; numerical ability to accurately compute dimensions, cutting angles, machine speeds, tolerances, feed rates and depth of cuts; spatial perception to visualize shape and mechanical structure of completed product represented on a two-dimensional surface; form perception to recognize minute defects in workpieces during machining operations, and to perceive detail and distinguish symbols on prints or drawings; eye-hand co-ordination to precisely align and secure workpieces, adjust tooling, and make rapid adjustments to machine controls in response to visual indications of machining malfunctions; finger dexterity to use precision measuring devices and tool-setting instruments, and to perform operations such as mounting industrial diamonds at specified angles on diamond cutting tools; manual dexterity to set up, operate and adjust a variety of machine tools, and to bench fit and assemble items such as dies, fixtures or gauges; physical capacity to stand for prolonged periods of time when monitoring performance of machines, and to reach for, lift and carry objects weighing up to fifty pounds; near visual acuity to read micrometers, verniers and other precision measuring devices, and depth perception to align and secure workpieces in machine holding devices; capacity for sustained attention to functioning of equipment while exposed to varying degrees of machine shop noises; adaptability to conditions in which there are physical hazards, such as the sharp edges on machines or workpieces, moving parts, and flying particles of metal from grinders, lathes or other machine tools.

TRAINING AND ENTRY REQUIREMENTS: Tool and Die Makers normally require: ten or more years of general education, preferably technically oriented; a four-year apprenticeship training program consisting of practical training and classroom or correspondence instruction; or extensive on-the-job training under the guidance of an experienced Tool and Die Maker. This method may be of the same duration, but usually takes longer than an apprenticeship program.

ADVANCEMENT POSSIBILITIES: Experienced Tool and Die Makers who acquire the necessary qualifications may advance to machine and tool designers, tool and die inspectors, technical sales representatives, or trade and technical school teachers. Those with supervisory potential may advance to 8310-122 FOREMAN, TOOL AND DIE. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Some workers who acquire knowledge of business practices and the necessary capital may open their own tool and die or machine shop.

OCCUPATIONAL TITLES:

8311-110 TOOL AND DIE MAKER
8311-114 DIAMOND-TOOL MAKER
8311-118 DIE MAKER, BENCH, STAMPING
8311-122 DIE MAKER, WIRE-DRAWING
8311-126 DIE SINKER, BENCH
8311-130 TOOL MAKER, BENCH
8311-134 CARBIDE-TOOL MAKER
8311-138 DIE FINISHER
8311-142 DIE MAKER, JEWELLERY
8311-146 EXTRUSION-DIE-TEMPLATE MAKER
8311-150 WIRE-DIE POLISHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	$\underline{3}$	$\underline{2}$	$\underline{2}$	4	$\underline{3}$	$\underline{3}$	$\underline{2}$	5	5	L-M47	I6	4-3	7-5	190	0Y
				$\underline{3}$	$\underline{3}$			$\underline{2}$	$\underline{3}$	4						19	

8313-A MACHINIST AND MACHINE-TOOL SETTING-UP OCCUPATIONS 260, 280, 480

WORK PERFORMED: This chapter includes occupations concerned with cutting and shaping metal into parts or products of specified dimensions. Worker functions include: setting up and operating machine-tools such as lathes, drill presses, shapers and grinders; analyzing data obtained from specifications and drawings to determine shape of workpieces, materials, machining requirements and sequence of operations; comparing dimensions and other characteristics of finished workpieces to specified requirements; working to close tolerances when machining and measuring workpieces; and setting up machine-tools for less-skilled machine-operators or tenders who perform repetitive type work. Work activities include: reading drawings or work orders and computing necessary dimensions; measuring and laying out workpieces in machines; selecting and installing appropriate cutting tools; loading control tapes into numerically-controlled machines; and moving controls to start and regulate equipment.

APTITUDES AND CAPACITIES: learning ability to understand metal properties, machining methods and shop mathematics, and to carry out machining instructions furnished in written or diagrammatic form; spatial perception to visualize finished workpiece from drawings, to lay out workpiece and to set up machine-tools to produce products according to specifications; form perception to examine surface for finish quality and measure finished workpiece for conformance to specifications; eye-hand co-ordination to skilfully and accurately set up and operate machine-tools; finger dexterity to make finger movements when using measuring instruments and to fit and assemble small parts; manual dexterity to handle machine controls, tools and parts; sufficient strength to perform medium work requiring the lifting and positioning of parts and materials weighing up to 50 pounds; near visual acuity and depth perception to set up and operate machines; and verify accuracy of finished workpiece; capacity to work around noisy machinery and handle greasy and dirty mechanisms and parts; adaptability to working where there are a variety of hazards such as exposure to moving mechanical parts, cuts and bruises; numerical ability to compute dimensions, tapers, cutting angles, tool settings, feed rates and machine speeds.

TRAINING AND ENTRY REQUIREMENTS: 10 to 12 years general education; for all-round machinist skills, a 4 to 6 year apprenticeship program; completion of certification requirements; for the setting up and operation of 1 or 2 types of machine-tools, 6 months to 2 years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers, with additional training, may advance within the cluster. Some workers may advance to similar occupations in other chapters. Those with potential for supervision may advance to similar occupations in Unit Group 8310 FOREMEN, METAL MACHINING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPTIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills, example: Chapter 8315 MACHINE-TOOL OPERATING OCCUPATIONS.

OCCUPATIONAL TITLES: (*Occupations numbered only by general category)

MACHINISTS	8313-110 to 8313-170
MACHINE TOOL SETTING-UP OCCUPATIONS	8313-174 to 8313-322

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	2	4	3	3	3	5	4	M47	I56	4	8-5	910	Y01

8315-A MACHINE-TOOL OPERATING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with cutting and shaping metal into parts or products, on a production basis, using machine-tools that are normally set up for repetitive work. Worker functions include: operating production lathes, drill presses, milling machines, grinders or specialized machine-tools; tending a variety of automatic or semi-automatic metal-cutting machines; and comparing dimensions of finished products to specifications. Work activities include: reading work orders to obtain job specifications; positioning and securing work-pieces in machines; starting machines and adjusting controls to regulate cutting speeds, feed rates and depth of cut; measuring finished products using precision instruments; and sharpening cutting tools.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the procedures for operating or tending machine-tools and reasoning ability to determine causes of machining irregularities; spatial perception to understand the function of machine-tools and visualize the relationship of moving parts to detect malfunctions or need for adjustment; form perception to detect surface defects on machined workpieces, such as burrs, nicks or scratches; eye-hand co-ordination to position and secure work pieces in holding devices and to make rapid adjustments to controls if a machining malfunction occurs; finger dexterity to manipulate precision measuring instruments such as micrometers, verniers or calipers; manual dexterity and the ability to extend the arms and hands to use hand tools and grinders to remove and sharpen cutting tools, or to adjust machine controls to regulate cutting speed, feed rate and depth of cut; physical capacity to lift and carry workpieces or tools weighing up to fifty pounds; near visual acuity to read graduations on precision measuring instruments; capacity to work in proximity to a variety of machine-tools which create considerable noise; adaptability to working where there are physical hazards, such as sharp edges on workpieces, moving parts on machines, and flying particles from grinders, lathes or other machine tools.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten years of general education, preferably with emphasis on technical subjects; three months to two years of on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Advancement for workers in this chapter may be to operators of more complex machine-tools within their own cluster. Skilled workers who acquire diversified experience on a number of machine-tools may advance to appropriate occupations in Chapter 8313, MACHINIST AND MACHINE-TOOL SETTING-UP OCCUPATIONS. Those with potential for supervision may advance to 8310-110 FOREMAN, MACHINE-TOOL OPERATORS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within their cluster.

OCCUPATIONAL TITLES:

8315-110 FITTER, FIREARMS
8315-114 AUTOMATIC-WHEEL-LINE OPERATOR
8315-118 CONNECTING-ROD BORER
8315-122 MACHINE-TOOL OPERATOR, PRODUCTION
8315-126 WOODWORKING-CUTTER SHARPENER
8315-130 AUTOMATIC-LATHE OPERATOR, CLOCK
8315-134 BRAKE-DRUM-LATHE OPERATOR
8315-138 SCREW-MACHINE OPERATOR, CUSTOM
8315-142 BORING-MACHINE OPERATOR, PRODUCTION
8315-146 COLLET MAKER
8315-150 DRILL-PRESS OPERATOR, PRODUCTION
8315-154 FILE CUTTER
8315-158 HONING-MACHINE OPERATOR, PRODUCTION
8315-162 METAL-SAWING-MACHINE OPERATOR
8315-166 THREADING-MACHINE OPERATOR
8315-170 DRILLING-AND-END-MILLING-MACHINE OPERATOR
8315-174 GRINDER OPERATOR, PRODUCTION
8315-178 LATHE OPERATOR, PRODUCTION
8315-182 MILLING-MACHINE OPERATOR, PRODUCTION

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	4	3	5	5	M47	I56	3	6-3	91	Y0
		3					4	3									Y02

8315-B MACHINE-TOOL OPERATING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with cutting and shaping metal into parts or products, on a production basis, using machine-tools that are normally set up for repetitive work. Worker functions include: operating production lathes, drill presses, milling machines, grinders or specialized machine-tools; tending a variety of automatic or semi-automatic metal-cutting machines; and comparing dimensions of finished products to specifications. Work activities include: reading work orders to obtain job specifications; positioning and securing work-pieces in machines; starting machines and adjusting controls to regulate cutting speeds, feed rates and depth of cut; measuring finished products using precision instruments; and sharpening cutting tools.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the procedures for operating or tending machine-tools and reasoning ability to determine causes of machining irregularities; spatial perception to understand the function of machine-tools and visualize the relationship of moving parts to detect malfunctions or need for adjustment; form perception to detect surface defects on machined workpieces, such as burrs, nicks or scratches; eye-hand co-ordination to position and secure workpieces in holding devices and to make rapid adjustments to controls if a machining malfunction occurs; finger dexterity to manipulate precision measuring instruments such as micrometers, verniers or calipers; manual dexterity and the ability to extend the arms and hands to use hand tools and grinders to remove and sharpen cutting tools, or to adjust machine controls to regulate cutting speed, feed rate and depth of cut; physical capacity to lift and carry workpieces or tools weighing up to fifty pounds; near visual acuity to read graduations on precision measuring instruments; capacity to work in proximity to a variety of machine-tools which create considerable noise; adaptability to working where there are physical hazards, such as sharp edges on workpieces, moving parts on machines, and flying particles from grinders, lathes or other machine tools.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for workers in this chapter may be to operators of more complex machine-tools within their own cluster; or from occupations in Cluster B to some occupations in Cluster A. Skilled workers who acquire diversified experience on a number of machine-tools may advance to appropriate occupations in Chapter 8313, MACHINIST AND MACHINE-TOOL SETTING-UP OCCUPATIONS. Those with potential for supervision may advance to 8310-110 FOREMAN, MACHINE-TOOL OPERATORS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within their cluster.

OCCUPATIONAL TITLES:

8315-186	BROACHING-MACHINE TENDER, PRODUCTION	8315-210	GEAR-CUTTING-MACHINE TENDER
8315-190	SCREWMAKER, AUTOMATIC	8315-214	LAPPING-MACHINE TENDER, PRODUCTION
8315-194	TAPPING-MACHINE TENDER	8315-218	LAP-TRUING-MACHINE TENDER
8315-198	TRANSFER-MACHINE TENDER	8315-222	PLASTIC SAWYER
8315-202	BARREL RIFLER	8315-226	SCREW-MACHINE TENDER, PRODUCTION
8315-206	ELECTRICAL-DISCHARGE-MACHINE TENDER	8315-230	SCRIBING-MACHINE TENDER
		8315-234	BLADE SHARPENER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	4	4	4	3	5	5	L-M47	I-56	3-2	4-2	319	2Y
				3	4	5	3										

8316-A INSPECTING AND TESTING OCCUPATIONS, METAL MACHINING 221, 281, 381, 382

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the machining of a variety of metal parts and products. Worker functions include: compiling and analyzing data from drawings and specifications to determine inspection or test procedures; comparing dimensional and structural characteristics of machined articles to specified standards; working to close tolerances when using micrometers, vernier calipers, height gauges and other precision measuring instruments; and operating or tending equipment to test performance or accuracy of assembled mechanisms. Work activities include: inspecting, testing and adjusting mechanical assemblies, tooks, fixtures, measuring instruments and similar items; examining finish of machined parts for defects; recording inspection or test results; and recommending corrective machining procedures.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply a variety of involved inspecting, testing and calibrating procedures, and reasoning ability to determine causes of defects and necessary corrective action; spatial perception to visualize three dimensional forms and assemblies represented in drawings; form perception to recognize physical defects such as wear, surface faults and warping when inspecting products, tools and gauges; eye-hand co-ordination when using test equipment and measuring devices, or when setting up and aligning gears in testing machines, and to use files or grinders to remove high spots from gears or machined parts; manual dexterity to move hands skilfully when disassembling and reassembling tools, gauges and measuring instruments, or when setting up and adjusting test equipment, mounting gears on spindles and installing spindle in gear-testing machine; physical capacity to reach for and handle tools, gauges and other objects, and to lift and carry jigs, fixtures, materials and machinery parts weighing up to fifty pounds; good hearing to detect indications of mechanical malfunctioning of parts or assemblies such as detecting improper gear meshing; near visual acuity to read fine scales of precision measuring instruments and when examining items for defects; finger dexterity to use precision instruments such as micrometers, dial indicators or calipers.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; six months to four years of combined on-the-job training and related experience with emphasis on the use of drawings, specifications and precision measuring instruments.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to more skilled occupations within the chapter. Those who demonstrate technical proficiency and have supervisory potential may advance to 8310-118 FOREMAN, METAL MACHINING, INSPECTION. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities may be to other occupations requiring similar basic skills in Chapter 8526, INSPECTING AND TESTING OCCUPATIONS, FABRICATING AND ASSEMBLING METAL PRODUCTS, N.E.C., such as 8526-282 PURCHASED-METAL-PARTS INSPECTOR, and 8526-290 SALVAGE INSPECTOR, INSTRUMENTS.

OCCUPATIONAL TITLES:

8316-110	INSPECTOR, TOOL AND GAUGE
8316-114	INSPECTOR, MACHINE SHOP
8316-118	GEAR INSPECTOR
8316-122	PROPELLER INSPECTOR
8316-126	DIFFERENTIAL-GEAR TESTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	2	4	3	4	3	5	5	M-467	I	4-3	7-6	91	YO
		4	4	4	3	3		3									

8331-B FORGING OCCUPATIONS

362, 380, 384, 663, 682, 684

WORK PERFORMED: This chapter includes occupations concerned with forming metal into desired shape by forging, with or without the benefit of heat. Worker functions include: operating or tending machines and equipment such as power presses and drop hammers; comparing colour of heated articles to specified standards to determine correct forging temperatures; compiling information from drawings, work orders or specifications to select materials and determine forging requirements; handling and feeding parts into furnaces or machines; and setting up machines for specific functions. Work activities include: selecting, installing and securing dies in forging machines such as forging and coining presses, drop hammers, forging rolls and upsetters; transferring heated workpiece from furnace to machine; moving controls to start, stop and regulate machine action; examining finished forgings for defects; and verifying their dimensional accuracy.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand forging processes and to apply the techniques of setting up and operating machines involved in forging operations; spatial perception to set up, operate and repair machinery and to verify dimensions of workpieces; form perception to inspect workpiece for conformance to specifications and to read measuring instruments; eye-hand-finger co-ordination, finger dexterity and manual dexterity to align and install dies or other fixtures in forging machines using hand tools, and to use measuring instruments when verifying dimensions of forged pieces; sufficient strength to perform medium to heavy work, requiring frequent lifting of items weighing up to fifty pounds, and frequent standing or walking when setting forging machines or observing forging operations; colour discrimination to observe colour of metal in furnace to determine forging temperature; capacity to work while exposed to heat from furnaces and hot metal,and atmospheric conditions such as fumes, odours and dust.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; up to four years of on-the-job training, or up to three years of related experience and from two to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this cluster may advance within their own individual cluster or with experience and training to 8331-110 DIE SETTER. Experienced workers with potential for supervision may advance to 8330-114 FOREMAN, FORGING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills in Minor Group 833, METAL SHAPING AND FORMING OCCUPATIONS, EXCEPT MACHINING; for example, 8336-118 INSPECTOR, FORGINGS.

OCCUPATIONAL TITLES:

8331-118	POWER-HAMMER OPERATOR
8331-122	DROP-HAMMER OPERATOR
8331-126	VEHICLE-SPRING REPAIRMAN
8331-130	FORGE-MANIPULATOR OPERATOR
8331-134	IMPACT-HAMMER OPERATOR
8331-138	FORGING-PRESS OPERATOR
8331-142	FORGING-ROLL OPERATOR
8331-146	SPIKE-MACHINE OPERATOR
8331-150	BULLET-SWAGING-MACHINE ADJUSTER
8331-154	BOLT-MACHINE OPERATOR, AUTOMATIC
8331-158	BUCKSHOT-SWAGE OPERATOR
8331-162	HEADER-MACHINE OPERATOR
8331-166	NUT FORMER
8331-170	UPSETTING-MACHINE OPERATOR
8331-174	HEADER OPERATOR, STEEL SHOT
8331-178	LEAF-SPRING MAKER
8331-186	COILER, HOT-WOUND SPRINGS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	$\underline{3}$	4	$\underline{3}$	$\underline{4}$	$\underline{3}$	4	5	M-H47	I-3567	3-2	7-3	91	Y0
	4			$\underline{3}$	$\underline{4}$	5	$\underline{4}$			5	$\underline{3}$						Y02

8331-C FORGING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with forming metal into desired shape by forging, with or without the benefit of heat. Worker functions include: operating or tending machines and equipment such as power presses and drop hammers; comparing colour of heated articles to specified standards to determine correct forging temperatures; compiling information from drawing, work orders or specifications to select materials and determine forging requirements; handling and feeding parts into furnaces or machines; and setting up machines for specific functions. Work activities include: selecting, installing and securing dies in forging machines such as forging and coining presses, drop hammers, forging rolls and upsetters; transferring heated workpiece from furnace to machine; moving controls to start, stop and regulate machine action; examining finished forgings for defects; and verifying their dimensional accuracy.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and carry out detailed but uninvolved written or oral instructions; eye-hand-finger co-ordination to thread wire through straightening rollers and feeding mechanisms into slots of die plates, and eye-hand co-ordination when removing hot metal from furnace and positioning it on anvil of forging machine; manual dexterity to skilfully use hand tools and measuring instruments, and to manipulate heated metal on hammer anvil using tongs; colour discrimination to determine when metal has been heated to desired forging temperature, especially for 8331-194 FORGING-PRESS TENDER and 8331-210 SPIKE-MACHINE FEEDER; sufficient strength to perform generally medium to heavy work requiring frequent lifting of items weighing up to fifty pounds, with the occasional lifting of items weighing seventy-five pounds, and frequent standing and walking in order to observe machine operations and to move hot metal from furnace to forging equipment; near-visual acuity to examine workpieces for defects and to grind surfaces of finished parts; capacity to work while exposed to heat from a forge, furnace or hot metal, and to continual loud forging shop noise; form perception to visually detect scratches, distortions or malformations of finished forgings.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: seven to eight years of general education; up to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for workers in Cluster C may be to occupations in B. Workers in this cluster may advance within their own individual cluster or with experience and training to 8331-110 DIE SETTER. Experienced workers with potential for supervision may advance to 8330-114 FOREMAN, FORGING OCCUPATIONS.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills in Minor Group 833, METAL SHAPING AND FORMING OCCUPATIONS, EXCEPT MACHINING; for example, 8336-118 INSPECTOR, FORGINGS.

OCCUPATIONAL TITLES:

8331-182	LEVERMAN
8331-190	BULLET CUTTER AND FORMER
8331-194	FORGING-PRESS TENDER
8331-206	NAIL-MAKING-MACHINE TENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	4	5	M-47	I-35	2	4-2	931	2Y3
			4		3					5	3						

261, 281, 381, 481

8333-A SHEET-METAL WORKERS

WORK PERFORMED: This chapter includes occupations concerned with making and repairing sheet-metal parts or products, usually on a custom basis. Worker functions include: manipulating hand tools, power tools, measuring instruments and special sheet-metal working devices; working to close tolerances when laying out, cutting and shaping sheet-metal; compiling and analyzing information from drawings or work orders to determine job specifications and fabrication procedures; and comparing dimensions and finish of completed items to specified standards. Work activities include: marking dimensions and reference lines on sheet-metal stock; operating machines such as shears, brakes and presses to cut, bend, punch, drill and straighten metal parts; assembling furnace casings, hoods, air ducts, partitions, appliance cabinets, prototype models and similar items; installing products in buildings; and repairing surface defects in sheet-metal parts.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the principles of working with sheet-metal, methods of assembly and the use of the product, and reasoning ability and judgment to determine layout and sequence for fabrication; numerical ability to make calculations of quantity, size and shape of articles to be made, and to prepare bids and estimates; spatial perception to visualize size and shape of sheet-metal product to be fabricated from, or to depict these shapes as, two dimensional sketches and drawings when making products or designs for components and products; form perception to make visual comparisons of slight differences in width, length, or finish of sheet-metal components or installations when examining them to ensure conformance to specifications; eye-hand-finger co-ordination and finger dexterity to measure and mark dimensions and reference lines on metal stock and to position and trace around patterns and templates with a variety of tools;manual dexterity to move the hands easily and skilfully to cut out and assemble sheet-metal products; sufficient strength to perform medium work requiring frequent lifting of items weighing up to twenty pounds with occasional lifting of items weighing up to fifty pounds, and frequent standing when laying out, cutting and assembling sheet-metal parts or products; for 8333-114 COPPERSMITH and 8333-118 SHEET-METAL WORKER, agility to climb ladders or work on scaffolds; physical ability to work in awkward positions such as stooping, kneeling and crouching, and to extend the hands and arms when laying out markings on metal and assembling sheet-metal or copper products; good vision to read blueprints and markings on measuring instruments when doing layouts and assemblies; capacity to work while exposed to loud noise from metalworking machines and adaptability to physical hazards, such as moving mechanical parts of machines and hot metal from welding, brazing or soldering operations especially significant for occupations 8333-114 COPPERSMITH and 8333-118 SHEET-METAL WORKER.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; a four to five-year apprenticeship program; or two to five years of on-the-job training; for 8333-114 COPPERSMITH and 8333-118 SHEET-METAL WORKER, completion of provincial certification examinations.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 8330-122 FOREMAN, SHEET-METAL WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Well qualified sheet-metal workers who acquire knowledge of business practices may also become self-employed.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar skills within the individual cluster or in other chapters, for example, 8787-110 ROOFER, METAL, or to appropriate occupations in Chapter 8334, METALWORKING-MACHINE OPERATORS, N.E.C.

OCCUPATIONAL TITLES:

8333-110 MODEL MAKER, HEATING APPARATUS
8333-114 COPPERSMITH
8333-118 SHEET-METAL WORKER
8333-122 MODEL MAKER, FLUORESCENT LIGHTING
8333-126 MODEL MAKER, METAL FURNITURE
8333-130 SHEET-METAL LAYOUT-MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	3	4	3	3	2	5	4	M2347	I56	4	8-6	9170	OY14
				3	2				3	4	5	M347	I			910	OY1

8334-A METALWORKING-MACHINE OPERATORS, N.E.C. 360, 380

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with utilizing powered metalworking machines to produce metal parts or products such as tinware, furniture and light structural frames from sheet metal, tubing, wire or bar stock, usually on a production basis. Worker functions include: setting up, operating or tending metalworking machines such as shears, brakes, rolls, riveters, spot welders and punch presses; compiling job specifications from drawings, charts or work orders; and comparing shpe, dimensions and finish of completed articles to ensure specifications are met. Work activities include: positioning, aligning and securing dies, punches, guides, stops and other parts of metalworking machines; positioning workpieces in or threading coiled materials through machine guides; moving controls to start and stop equipment; observing metalworking operations and making necessary machine adjustments; and measuring finished products to verify dimensions.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand metal properties and metalworking methods and to follow work instructions furnished in written or diagrammatic form; spatial perception to visualize the shape of finished products from drawings or work orders; and to visualize the relationship of parts when setting up machines; form perception to examine and measure finished workpieces for conformance to specifications; eye-hand-finger co-ordination and manual dexterity to position workpieces, to handle machine controls and to use measuring instruments and hand tools; sufficient strength to perform medium to heavy work, requiring the lifting of materials, parts and tools and the pushing of hand trucks; near visual acuity and depth perception to perform activities such as setting up machines, aligning workpieces, reading measuring instruments and examining products for defects; capacity to work in proximity to loud noises, vibrations and hazards such as moving machine parts, hot metal and sharp metal objects; and for some occupations there is possibility of injury from lifting heavy objects; or for 8334-270 LEAD-FITTING FINISHER, there is possibility of lead poisoning; numerical ability to make computations for machine setups and to lay out dimensions on workpieces; finger dexterity to hold and align small parts when setting up machines and to use micrometers and other measuring instruments quickly and accurately; ability to stoop, kneel or crouch when setting up metalworking machines.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: nine to twelve years of general education; six months to four years of combined on-the-job training and related experience as a machine operator or tender, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to higher skilled occupations within their individual cluster. Workers with supervisory potential may advance to appropriate occupations in Chapter 8330, FOREMEN, METAL SHAPING AND FORMING OCCUPATIONS, EXCEPT MACHINING. See also Chapter 990, FOREMEN OCCUPATIONS, for qulifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations requiring similar skills within their individual cluster, or to other appropriate occupations in Minor Group 833, METAL SHAPING AND FORMING OCCUPATIONS, EXCEPT MACHINING.

OCCUPATIONAL TITLES:

8334-110 SLIDE-FORMING-MACHINE SET-UP MAN
8334-114 METALWORKING-MACHINE SET-UP MAN
8334-118 BRAKE SET-UP OPERATOR
8334-122 FORMING-ROLL SET-UP OPERATOR
8334-126 STRAIGHT-LINE-PRESS SET-UP MAN
8334-130 SHEET-METAL-WORKING-MACHINE SET-UP OPERATOR
8334-134 SLIDE-FORMING-MACHINE SET-UP OPERATOR
8334-138 NAIL-MAKING-MACHINE SET-UP OPERATOR
8334-142 POWER-PRESS SET-UP OPERATOR
8334-146 BENDING-MACHINE SET-UP OPERATOR
8334-150 INDUSTRIAL-NEEDLE-MACHINE-SETTER-OPERATOR
8334-154 MULTI-OPERATION-FORMING-MACHINE SET-UP OPERATOR
8334-158 SPRING-MAKING-MACHINE SET-UP OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	3	3	5	5	M347	I56	4-3	7-5	910	0Y1
		4	3	2						4						91	

8335-A WELDING AND FLAME CUTTING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with joining, cutting and surfacing ferrous and non-ferrous metal parts or structures using welding, brazing, soldering, lead-burning or flame-cutting techniques. Worker functions include: setting up, operating or tending machines and equipment to fuse, bond or cut metal; manipulating and guiding welding torch, gun, electrode, or fuller rod along joint or seam at proper rate and angle; working precisely to control heat during fusing, bonding or cutting operations; analyzing and compiling data from drawings, work orders or specifications to determine layout, dimensions and appropriate assembly methods; and comparing bead size, penetration and other characteristics of finished joints to established standards. Work activities include: cleaning workpieces by chipping, grinding, brushing or degreasing; laying out and marking weld points or cutting lines; positioning and securing workpieces in preparation for fabrication or repair work; selecting appropriate electrodes, filler rods, torch tips or related apparatus; and moving controls to start, stop and adjust equipment.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the properties of various metals and the effects of expansion and shrinkage on metal due to heat, and to comprehend and apply various methods and techniques of welding, brazing, soldering and flame cutting; numerical ability for 8335-334 WELDING TECHNICIAN, to rapidly and accurately apply shop mathematics when laying out work or developing set-up data; spatial perception to visualize from drawings and specifications, the relationships and arrangements of parts and assemblies to be joined; form perception to discern slight differences in shapes, dimensions, alignment and filler-metal application; eye-hand co-ordination to manipulate machine controls, electrodes, torch or filler rod quickly and accurately during setting up, welding, brazing and cutting operation; ability to move the fingers and manipulate valves, dials and torch tips when setting up and adjusting welding, brazing and cutting equipment or machines; manual dexterity to move the hands easily and skilfully when positioning workpieces and manipulating electrodes or torches, sometimes employing a special weaving motion during fusing, bonding or cutting operations; colour discrimination to recognize colour-coded metals and welding rods, and ferrous metals by grinder-spark tests, flame temperature, and colour differences between hot and molten metal at time of bonding or fusing; strength to perform medium to heavy work requiring frequent lifting of workpieces weighing up to seventy-five pounds; capacity to work in stooping, crouching, kneeling or reaching positions, when performing horizontal, vertical or overhead welds; capacity to work, usually inside, while exposed to loud noises from welding and hammering operations; capacity to detect differences in welding or cutting performance from the sounds of the cutting torch and to detect dampness in certain electrode coatings by excessive sputter during arc welding; adaptability to working in conditions where there are physical hazards, from hot metal, showering sparks, and fumes produced by chemical reactions.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: twelve years of general education; a two-year program of studies at a college of applied arts and technology, and two or more years of on-the-job training; or a three to four-year apprenticeship combined with a course of studies established through the Canadian Welding Bureau; completion of examination and registration requirements.

ADVANCEMENT POSSIBILITIES: Workers with supervisory potential may advance to 8330-126 FOREMAN, WELDING AND FLAME CUTTING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to occupations requiring similar skills within the individual cluster, or with limited additional training to occupations in other clusters in the chapter. Experienced workers may also transfer to occupations in quality control work, such as 8336-110 WELD INSPECTOR.

OCCUPATIONAL TITLE:

8335-334 WELDING TECHNICIAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	3	3	3	3	3	5	3	L457	I567	4	7	791	0Y941

8335-C WELDING AND FLAME CUTTING OCCUPATIONS

664, 681, 682, 684

WORK PERFORMED: This chapter includes occupations concerned with joining, cutting and surfacing ferrous and non-ferrous metal parts or structures using welding, brazing, soldering, lead-burning or flame-cutting techniques. Worker functions include: setting up, operating or tending machines and equipment to fuse, bond or cut metal; manipulating and guiding welding torch, gun, electrode, or fuller rod along joint or seam at proper rate and angle; working precisely to control heat during fusing, bonding or cutting operations; analyzing and compiling data from drawings, work orders or specifications to determine layout, dimensions and appropriate assembly methods; and comparing bead size, penetration and other characteristics of finished joints to established standards. Work activities include: cleaning workpieces by chipping, grinding, brushing or degreasing; laying out and marking weld points or cutting lines; positioning and securing workpieces in preparation for fabrication or repair work; selecting appropriate electrodes, filler rods, torch tips or related apparatus; and moving controls to start, stop and adjust equipment.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply electric arc, resistance and gas welding, brazing, soldering and cutting methods, procedures and instructions; spatial perception to visualize, from drawings and specifications, the relationships and arrangements of parts to be joined; form perception to discern pertinent detail in bead sizes, penetration and eveness of weld; eye-hand co-ordination to quickly and accurately manipulate machine controls, electrode, torch or filler rod during welding, brazing or cutting operations; manual dexterity to move the hands easily and skilfully when positioning workpieces, striking an arc and manipulating electrodes or torches; colour discrimination to recognize similarities and differences in shades of colour, especially during flame adjustment and grinder spark tests; strength to perform medium to heavy work requiring frequent lifting of workpieces and materials weighing up to fifty pounds; capacity to work in stooping, crouching, kneeling or reaching positions when performing horizontal, vertical or overhead welds; capacity to work, usually inside, while exposed to loud noises from welding, brazing and hammering of metal; adaptability for working in conditions subject to physical hazards, from hot metal, showering sparks, and noxious fumes.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; six months to four years of on-the-job training with additional vocational courses, depending on the occupation; completion of examination and registration requirements, depending on the occupations.

ADVANCEMENT POSSIBILITIES: With additional training, experienced workers in Cluster C may advance to higher skilled occupations in Cluster B. Those with supervisory potential may advance to 8330-126 FOREMAN, WELDING AND FLAME CUTTING OCCUPATIONS.

TRANSFER POSSIBILITIES: Transfer may be to occupations requiring similar skills within the individual cluster, or with limited additional training to occupations in other clusters in the chapter. Experienced workers may also transfer to occupations in quality control work, such as 8336-110 WELD INSPECTOR.

OCCUPATIONAL TITLES:

8355-122 WELDER, PRESSURE VESSELS
8355-126 WELDER, COMBINATION
8335-130 WELDING-MACHINE OPERATOR, GAS-SHIELDED ARC
8335-134 WELDING-MACHINE OPERATOR, SUBMERGED ARC
8335-138 WELDER, ARC
8335-142 WELDER, GAS
8335-298 FLAME-CUTTING-MACHINE OPERATOR
8335-302 FLAME-CUTTING TRACER-MACHINE OPERATOR
8335-198 INDUCTION-BRAZER OPERATOR
8335-202 BRASER, GAS
8335-146 TACK WELDER, ASSEMBLER
8335-150 WELDER, GAS-SHIELDED ARC
8335-154 WELDER, SUBMERGED ARC
8335-266 LEAD BURNER
8335-206 BRAZER, FURNACE
8335-210 BRAZING-MACHINE OPERATOR
8335-158 WELDER, RESISTANCE, BUTT
8335-162 WELDER, RESISTANCE, SPOT
8335-306 ARC CUTTER
8335-310 FLAME CUTTER, HAND
8335-338 METAL STRAIGHTENER AND HEATER
8335-214 SOLDERER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	4	4	$\underline{3}$	$\underline{3}$	4	$\underline{3}$	4	$\underline{3}$	5	3	M-H347	B567	3	7-4	91	YO
			3		$\underline{4}$	5	$\underline{4}$			4	4						
											5						

8335-D WELDING AND FLAME CUTTING OCCUPATIONS 684, 685, 686, 687

WORK PERFORMED: This chapter includes occupations concerned with joining, cutting and surfacing ferrous and non-ferrous metal parts or structures using welding, brazing, soldering, lead-burning or flame-cutting techniques. Worker functions include: setting up, operating or tending machines and equipment to fuse, bond or cut metal; manipulating and guiding welding torch, gun, electrode, or fuller rod along joint or seam at proper rate and angle; working precisely to control heat during fusing, bonding or cutting operations; analyzing and compiling data from drawings, work orders or specifications to determine layout, dimensions and appropriate assembly methods; and comparing bead size, penetration and other characteristics of finished joints to established standards. Work activities include: cleaning workpieces by chipping, grinding, brushing or degreasing; laying out and marking weld points or cutting lines; positioning and securing workpieces in preparation for fabrication or repair work; selecting appropriate electrodes, filler rods, torch tips or related apparatus; and moving controls to start, stop and adjust equipment.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply electric arc, resistance and gas welding, brazing, soldering and cutting methods, procedures and instructions; spatial perception to visualzie, from drawings and specifications, the relationships and arrangements of parts to be joined; form perception to discern pertinent detail in bead sizes, penetration and eveness of weld; eye-hand co-ordination to quickly and accuratley manipulate machine controls, electrode, torch or filler rod during welding, brazing or cutting operations; manual dexterity to move the hands easily and skilfully when positioning workpieces, striking an arc and manipulating electrodes or torches; colour discrimination to recognize similarities and differences in shades of colour, especially during flame adjustment and grinder spark tests; strength to perform medium to heavy work requiring frequent lifting of workpieces and materials weighing up to fifty pounds; capacity to work in stooping, crouching, kneeling or reaching positions when performing horizontal, vertical or overhead welds; capacity to work, usually inside, while exposed to loud noises from welding, brazing and hammering of metal; adaptability for working in conditions subject to physical hazards, from hot metal, showering sparks, and noxious fumes.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to nine years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, experienced workers in Cluster D may advance to higher skilled occupations in Cluster B. Those with supervisory potential may advance to 8330-126 FOREMAN, WELDING AND FLAME CUTTING OCCUPATIONS.

TRANSFER POSSIBILITIES: Transfer may be to occupations requiring similar skills within the individual cluster, or with limited additional training to occupations in other clusters in the chapter. Experienced workers may also transfer to occupations in quality control work, such as 8336-110 WELD INSPECTOR.

OCCUPATIONAL TITLES:

8335-166 WELDER, PRODUCTION LINE
8335-270 BATTERY-LEAD-BURNER, MACHINE
8335-274 BATTERY-LEAD BURNER
8335-218 BODY SOLDERER
8335-314 FLAME CUTTER, SCRAP
8335-222 SOLDERER, JEWELLERY
8335-226 INDUCTION BRAZER, PRODUCTION
8335-230 JEWELLERY-SOLDERING-MACHINE TENDER
8335-170 RESISTANCE-WELDER TENDER
8335-234 SIDE-SEAM TENDER
8335-342 WELDER HELPER
8335-238 SOLDERER, ASSEMBLER
8335-242 SOLDERER-DIPPER
8334-174 WELDER, RESISTANCE, HAND
8335-246 TYPE-SOLDERING-MACHINE TENDER
8335-346 MACHINE FEEDER
8335-278 BATTERY-LEAD-BURNER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	5	5	S-M47	B67	3-2	4-2	391	2Y
			5		3		3			4	3						23Y

8336-A INSPECTING AND TESTING OCCUPATIONS, METAL SHAPING AND FORMING, EXCEPT MACHINING

281, 381

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the shaping, forming and joining of metal objects, involving a variety of techniques except those of metal-machining. Worker functions include: manipulating test instruments and inspection devices to confirm suitability of materials or work in progress working precisely to accurately measure layouts or confirm alignment of structures and parts; compiling inspection and test information and analyzing data from drawings or specifications; and comparing quality of materials and finished products to specified standards. Work activities include: inspecting and testing welded joints for defects; verifying dimensional accuracy of forgings, plates and structural shapes; recording test results; and recommending changes in machine setup or assembly procedures to improve products.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the principles of metal shaping and forming, methods of assembly, use of inspection and test equipment, and to interpret drawings, specifications and quality-control procedures to carry out inspecting and testing activities; numerical ability to verify measurements of metal parts or products for conformance to layouts and specifications; spatial perception to inspect three-dimensional finished parts or assemblies from drawings and specifications; form perception to make visual comparisons of slight differences in welded joints, finished metal products and surfaces of forgings to detect flaws and to determine need for machine adjustments; eye-hand co-ordination and manual dexterity to inspect metal parts and products for defects, using a variety of measuring devices, and to place or remove items from test equipment or fixtures; physical fitness and sufficient strength to perform medium to heavy work requiring frequent lifting of items weighing up to fifty pounds and frequent standing and walking to carry out quality-control activities; agility to work in awkward positions, around machines or assemblies involving stooping or kneeling when inspecting and testing parts or products; physical ability to extend the hands and arms when placing metal parts or products in test equipment, inspecting parts for defects and when verifying dimensions of workpieces; visual acuity, near and far, to inspect parts, assemblies or coated metal for defects, and to read gauges and markings on test equipment or instruments; capacity to work while exposed to continual loud noise from metal shaping and forming machines and equipment in the vicinity of inspection and test areas; adaptability to conditions involving possible injuries such as burns from hot metal, cuts from tinplate, eye injury from welding flash and possible skin disorders from chemicals, and exposure to fumes and odors.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten years of general education; one to two or more years of experience as a qualified worker in the field of work involved, supplemented with vocational courses or on-the-job training in inspection techniques.

ADVANCEMENT POSSIBILITIES: Experienced workers in this cluster with supervisory ability may advance to foremen of quality-control departments, or to appropriate occupations in Unit Group 8330, FOREMEN, METAL SHAPING AND FORMING OCCUPATIONS, EXCEPT MACHINING. See Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: With limited additional training, transfer may be possible to occupations requiring similar skills in other chapters; for example 8146-126 METAL PROCESSING INSPECTOR; 8146-138 CASTING INSPECTOR; and 8146-150 TINPLATE INSPECTOR AND GRADER.

OCCUPATIONAL TITLES:

8336-110 WELD INSPECTOR
8336-114 INSPECTOR, METAL FABRICATING
8336-118 INSPECTOR, FORGINGS
8336-122 INSPECTOR, LEAF SPRINGS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	2	4	4	4	4	5	4	M-H347	I-B567	4-3	7-5	197	0Y
		4	4	3	3						5		I57			19	

8337-A BOILERMAKERS, PLATERS & STRUCTURAL-METAL WORKERS 360, 361, 380, 381

WORK PERFORMED: This chapter includes occupations concerned with fabricating, assembling and repairing boilers and metal plates and structural parts for tanks, ships and other structures. Worker functions include: setting up, operating or tending heavy-duty metalworking machines such as shears, saws, rolls, brakes and presses; working to close tolerances when fitting, aligning and fastening parts together; compiling information from drawings or specifications to determine layouts and the sequence of operations for assembling metal structures; comparing shape and dimensions of completed workpieces to drawing specifications; and manipulating cutting torches, levels, rules, wedges, bars, jacks and hammers to cut, bend, shape and align steel plates. Work activities include: marking dimensions and reference lines on workpieces; preheating workpeices using hand torch or furnace; cutting, bending, rolling, fitting, welding or riveting metal plates, tubes or beams; and assembling boilers in shop or on site.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the physical properties of structural metal and methods of assembly and reasoning ability to determine layouts and to carry out procedures for the fabrication of the part or product; numerical ability to accurately use geometry, trigonometry and shop mathemactics to plan and develop structural metal layouts; spatial perception to visualize the interrelationship of parts and the size and shape of the finished product from drawings, and to design and construct templates and fixtures; form perception to make visual comparisons and see slight differences in size or shape of structural metal components or installations when examining them for conformance to specifications; eye-hand-finger co-ordination and finger dexterity to precisely mark procedural symbols, reference points and dimensions on structural shapes, plates and tubes, and to position and trace around patterns and templates; manual dexterity to position, align and fit parts together preparatory to final assembly; sufficient strength to perform medium to heavy work requiring frequent lifting of items weighing from twenty to fifty pounds, with the occasional lifting of items weighing up to one hundred pounds and constant standing when laying out, cutting and assembling metal components and products, operating or working around machines, and shaping plate metal to desired contours; agility to climb ladders or work on scaffolds when fitting together large assemblies or installing assemblies; physical ability to work in awkward positions, such as stooping, kneeling or crouching, as well as the ability to work in confined areas, and to extend the hands and arms to work around machines and position workpieces in them, to lay out marking lines on metal, to position workpieces in them, to lay out marking lines on metal, to position, align or assemble metal parts, and to attach or remove hook of hoist from structural assemblies; near visual acuity to read blueprints and markings on measuring instruments, to follow cutting lines or to align lay-out markings on workpiece with dies or cutting blades of machines, to set up metalworking machines according to drawings, layouts and templates, or to apply heat to remove welding distortions from plate metal; capacity to work while exposed to continual loud noise from metal-working machines and hammering on metal; adaptability to physical hazards or injury from moving mechanical parts of metalworking machines; cuts, bruises or burns when handling, cutting out, or assembling structural metal; and possible falls when working on ladders or scaffolds.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to eleven years of general education; a three to four-year apprenticeship program; or up to four years of on-the-job training; or several years of on-the-job training combined with part-time studies; completion of provincial certification requirements.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter with supervisory potential may advance to 8330-110 FOREMAN, BOILERMAKERS, PLATERS AND STRUCTURAL METAL WORKERS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to occupations within the cluster, or to appropriate occupations requiring similar skills in Minor Group 833 METAL SHAPING AND FORMING OCCUPATIONS, EXCEPT MACHINING. Transfer may also be to occupations requiring similar skills in other chapters such as Chapter 8523 INDUSTRIAL, FARM, CONSTRUCTION AND OTHER MECHANIZED EQUIPMENT AND MACHINERY FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C. and 8793 STRUCTURAL-METAL ERECTORS.

OCCUPATIONAL TITLES: 8337-110 BOILERMAKER; 8337-114 STRUCTURAL-METAL FABRICATOR; 8337-118 BOILERMAKER, ERECTION AND REPAIR; 8337-122 FITTER, STRUCTURAL METAL; 8337-126 LAY-OUT-MAN, STRUCTURAL METAL; 8337-130 METAL FORMER, HAND; 8337-134 HEAVY-DUTY PRESS-SET-UP OPERATOR; 8337-138 METAL-FORMING MACHINE SET-UP OPERATOR; 8337-142 ORNAMENTAL-METAL WORKER.

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	3	4	3	3	2	4	4	M-H2347	I56	4	7-6	901	OY1
		4		3				4	3		5						

8337-C BOILERMAKERS, PLATERS AND STRUCTURAL-METAL WORKERS 684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with fabricating, assembling and repairing boilers and metal plates and structural parts for tanks, ships and other structures. Worker functions include: setting up, operating or tending heavy-duty metal working machines such as shears, saws, rolls, brakes and presses; working to close tolerances when fitting, aligning and fastening parts together; compiling information from drawings or specifications to determine layouts and the sequence of operations for assembling metal structures; comparing shape and dimensions of completed workpieces to drawing specifications; and manipulating cutting torches, levels, rules, wedges, bars, jacks and hammers to cut, bend, shape and align steel plates. Work activities include: marking dimensions and reference lines on workpieces; preheating workpieces using hand torch or furnace; cutting, bending, rolling, fitting, welding or riveting metal plates, tubes or beams; and assembling boilers in shop or on site.

APTITUDES AND CAPACITIES: learning ability to understand and carry out detailed but uninvolved structural metalworking instructions; spatial perception to visualize the size and shape of the final product when helping to position structural parts for assembly, or when helping to bend workpiece to a specified shape; form perception to examine and measure finished workpiece for conformance to specifications; eye-hand-finger co-ordination to position workpieces in machines, to handle machine controls and to use measuring instruments; manual dexterity to remove burrs, sharp edges or scale from workpieces, using hand and power tools; sufficient strength to perform medium to heavy work requiring frequent lifting of items weighing from 20 to 50 pounds, with the occasional lifting of items weighing up to 100 pounds and constant standing when laying out, cutting and assembling metal components and products, operating or working around machines, and shaping plate metal to desired contours; agility to climb ladders or work on scaffolds when fitting together large assemblies or install assemblies; physical ability to work in awkward positions, such as stooping, kneeling or crouching, as well as the ability to work in confined areas, and to extend the hands and arms to work around machines and position, align or assemble metal parts, and to attach or remove hook of hoist from structural assemblies; near visual acuity to read blueprints and marking on measuring instruments, to follow cutting lines or to align lay-out markings on workpiece with dies or cutting blades of machines, to set up metalworking machines according to drawings, layouts and templates, or to apply heat to remove welding distortions from plate metal; capacity to work while exposed to continual loud noise from metalworking machines and hammering on metal; adaptability to physical hazards or injury from moving mechanical parts of metalworking machines; cuts, bruises or burns when handling, cutting out, or assembling structural metal; and possible falls when working on ladders or scaffolds.

TRAINING AND ENTRY REQUIREMENTS: 7 to 8 years of general education; up to 6 months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for workers may be from occupations in Cluster C to appropriate occupations requiring higher skills in Cluster A. Experienced workers with supervisory potential may advance to 8330-110 FOREMAN, BOILERMAKERS, PLATERS AND STRUCTURAL METAL WORKERS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to occupations within the cluster, or to appropriate occupations requiring similar skills in Minor Group 833 METAL SHAPING AND FORMING OCCUPATIONS, EXCEPT MACHINING. Transfer may also be to occupations requiring similar skills in other chapters such as 8523 INDUSTRIAL, FARM, CONSTRUCTION AND OTHER MECHANIZED EQUIPMENT AND MACHINERY FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C., and 8793 STRUCTURAL-METAL ERECTORS.

OCCUPATIONAL TITLES:

8337-158 BOILERMAKER HELPER	8337-166 METAL-FORMER HELPER, HAND
8337-162 METAL-FORMING-MACHINE TENDER	8337-170 BOILERMAKER HELPER, ERECTION AND REPAIR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	3	4	3	4	5	H2347	I56	2	4-3	193	2Y0
			5			5	4										23Y

8351-A WOOD PATTERNMAKING OCCUPATIONS

281, 381

WORK PERFORMED: This chapter includes occupations concerned with making wooden patterns used to form sand moulds for casting metal articles and making full-size or scale models of mass-produced items. Worker functions include: working to close tolerances when laying out designs for patterns and operating woodworking machines; compiling and analyzing information from drawings or finished articles to determine patternmaking requirements; manipulating measuring instruments and hand and power tools to lay out work and shape wood stock; and comparing shape and dimensions of finished workpieces with specifications. Work activities include: marking, cutting, shaping, fitting and fastening parts together to construct patterns or models; and finishing surfaces by sanding and applying shellac, lacquer or paint.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to analyze and study engineering drawings and specifications and in some occupations, use a knowledge of moulding and casting techniques, to design and construct wooden patterns and models, with a variety of precision woodworking hand tools and machines; numerical ability to apply general shop mathematics to the preparation of plans and making of layouts for patterns or models; spatial perception to visualize the completed pattern or model from two-dimensional drawings and to construct the several parts of models to fit together to form the desired end product; form perception to discern imperfections in finish and differences in dimensions or shape of finished articles from templates or other standards; eye-hand-finger co-ordination to control operation of woodworking machines and to use measuring equipment with accuracy; finger dexterity to manipulate hand tools or objects with the fingers when trimming, smoothing and shaping surfaces; manual dexterity to skilfully guide or move and turn parts or guide cutting tools while using woodworking machines, and to plane, shave, file, scrape and sand wood stock to specified shape; strength to perform light to medium work requiring occasional lifting of up to fifty pounds; near visual acuity to read drawings, accurately measure dimensions of workpieces and to follow outlines when cutting parts out of wood stock; capacity for working adjacent to very noisy woodworking machines, in a dust laden atmosphere and to adapt to risk of physical injuries, such as cuts, bruises or loss of fingers.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; one to four years of on-the-job training depending on the complexity of the occupation; for 8351-110 PATTERNMAKER, WOOD, the requirement is a four to five-year apprenticeship program.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter with supervisory potential may advance to 8350-118 FOREMAN, WOOD PATTERNMAKING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in Cluster A may transfer to appropriate occupations requiring similar skills in Chapter 8395, PATTERNMAKERS AND MOULDMAKERS, N.E.C.; for example, 8395-118 MODEL MAKER, and 8395-150 TEMPLATE MAKER.

OCCUPATIONAL TITLES:

8351-110	PATTERNMAKER, WOOD
8351-114	MODEL MAKER, WOOD
8351-118	MODEL MAKER, LAST
8351-122	HAT-BLOCK MAKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	3	4	3	3	2	5	4	L-M47	I-567	4-3	8-6	901	YO
				3													

8351-C CELLULOSE PULP PREPARING OCCUPATIONS 665, 684, 685

WORK PERFORMED: This chapter includes occupations concerned with reducing logs, rags, scrap, pulp and similar cellulose materials to pulp slurry. Worker functions include: operating and tending machines that grind logs or wood chips into fibres used in making wood pulp, or controlling equipment to mix, screen, refine, cook, bleach, wash and dry pulp material. Work activities include: monitoring control panels of bleachers, digesters and screening-room equipment; adjusting temperature and pressure controls; starting pumps and turning valves to regulate flow of water, pulp and chemicals; collecting samples of fluids and pulp during processing; cleaning, adjusting and lubricating equipment; and cleaning work areas.

APTITUDES AND CAPACITIES: learning ability to understand cellulose pulp processing machinery operating and support activities and to carry out detailed written or oral work instructions; form perception to make visual comparisons and see slight differences in consistency of materials; eye-hand co-ordination and manual dexterity to move controls and turn valves to regulate flow of materials while observing gauges and indicating devices, start and stop pumps, conveyors and other equipment, and to collect samples and perform production quality control tests; ability, for some workers, to give clear oral instructions to others; good hearing for most workers, but particularly for digester operations and bleacher operators, to detect noises indicating malfunctioning equipment or processing cycles; near visual acuity to observe gauges and lighted flow diagrams on control panels and to take readings with a variety of instruments, such as hydrometers and pH meters; colour vision to minitor indicator lights on control panels and to perform titration tests; adaptability to working in unpleasant environmental conditions, a such as wetness and humidity, close proximity to noisy equipment, and exposure to odours and noxious fumes; agility to climb steps and ladders on machines or vats to monitor operations or to adjust or clean equipment.

TRAINING AND ENTRY REQUIREMENTS: eight to ten years of general education; on-the-job training ranging from a short demonstration to four months.

ADVANCEMENT POSSIBILITIES: Workers in this chapter may advance to more highly skilled occupations within their own cluster, or with some additional training from Cluster C to B, and to A. Experienced workers with supervisory potential may advance to 8250-110 FOREMAN, CELLULOSE-PULP-PREPARING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to other occupations requiring similar skills within their individual cluster, or in some instances with limited additional training to occupations in other clusters. Experienced workers may also transfer to appropriate occupations in Chapter 8256, INSPECTING TESTING, GRADING AND SAMPLING OCCUPATIONS, PULP AND PAPERMAKING.

OCCUPATIONAL TITLES:

8251-154	SCREENMAN
8251-158	DIGESTER TENDER
8251-162	BROWN-STOCK-WASHER HELPER
8251-166	SCREENMAN, PAPER MACHINE
8251-170	BEATER TENDER
8251-174	BLEACHER, RAG STOCK
8251-178	BLOW-PIT MAN
8251-180	KNIFE SETTER, CHIPPER MACHINE
8251-182	BLEACH-BOILER TENDER
8251-186	BROKE-BEATER MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	4	5	L-M24	I-4567	3-2	4-2	913	23Y
			5			4				5	3						

8353-A WOOD SAWING AND RELATED OCCUPATIONS, EXCEPT SAWMILL

WORK PERFORMED: This chapter includes occupations concerned with sawing wood stock and paperboard or other non-metallic materials to specified shape or dimensions in a factory or shop, excluding sawing of lumber from logs, and production of veneer and plywood sheets. Worker functions include: operating or tending powered band, circular, or reciprocating saws to cut lumber or wood stock according to customer's order or production requirements; and comparing dimensions of cut stock to specifications. Work activities include: adjusting machine stops, guides and saw blade according to cut to be made; selecting, measuring and marking stock; moving controls to start and stop machine; and replacing worn or defective saw blades.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand wood sawing operations and to operate or tend power saws, and to follow work orders and specifications; form perception to recognize differences in shape or dimensions of wood stock and to observe grain, knots and surface finish; eye-hand-finger co-ordination and manual dexterity to turn handwheels, change saws or to adjust saws or tables, and to hold and guide or turn wood stock against saw blade while following cutting outline; strength to perform light to medium work requiring lifting, carrying or pushing of wood stock weighing up to fifty pounds; near visual acuity to examine lumber for defects, to measure and mark locations for cutting, to adjust guides and to feed material into saws; capacity for working in the presence of intense and sustained noise from power saws and other woodworking machinery; adaptability to working in dusty conditions, while exposed to physical hazards that may result in injuries, such as cuts from exposed saw blades and bruises or fractures from handling lumber; finger dexterity to set guides and stops at the desired length, width or angle of cut.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; up to six months of on-the-job training which may include related experience on other woodworking machines.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 8350-126 FOREMAN, WOOD SAWING AND RELATED OCCUPATIONS, EXCEPT SAWMILL. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. With some additional training, advancement may also be to 8356-110 INSPECTOR, WOOD MACHINING.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to occupations within their individual cluster or to other occupations requiring similar skills in other chapters, for example 8231-142 TRIMMING-MACHINE OPERATOR, 8239-130 SIZING-SAW TENDER, and 8355-150 DADO OPERATOR.

OCCUPATIONAL TITLES:

8353-110	BAND-SCROLL-SAW OPERATOR
8353-114	JIGSAW OPERATOR
8353-118	RESAW OPERATOR
8353-122	VARIETY-SAW OPERATOR
8353-126	STOCK CUTTER, WOOD
8353-130	CUT-OFF-SAW OPERATOR
8353-134	RADIAL-ARM-SAW OPERATOR
8353-138	RIPSAW OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	3	$\underline{3}$	5	$\underline{3}$	$\underline{4}$	$\underline{3}$	5 4	5	M-47	I-567	3-2	4-3	931	2Y0

8355-A PLANING, TURNING, SHAPING AND RELATED WOOD MACHINING OCCUPATIONS

280, 281, 382, 662, 682

WORK PERFORMED: This chapter includes occupations concerned with machining wood to specified dimensions and shape to make wooden parts or products in a factory or in a shop. Worker functions include: operating woodworking machines to plane, turn, shape, mortise, route, bore or cut wood to specifications; tending machines that cut out or shape parts or articles, such as bowls, toothpicks and clothes hangers, in production quantities; and comparing measurements of finished items with those of samples, patterns, drawings or work orders. Work activities include: studying drawings to determine tooling required to produce specified products; positioning and securing workpiece in machine of feeding stock into machines; installing and adjusting cutters, guides, feed rollers, jigs and stops; and replacing worn or broken drills, cutters, knives and tool bits.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the operation of woodworking machines and to apply woodworking procedures and techniques; spatial perception to visualize finished products from drawings and specifications; form perception to notice slight differences in size and finish of products when examining them for defects; eye-hand-finger co-ordination when operating machines such as planers, routers, sanders and tenoners, and to use hand and power tools with precision and speed; manual dexterity to skilfully use hand tools when adjusting and operating machines and positioning workpieces; strength to lift and carry wood, tools and equipment weighing up to fifty pounds and to feed wood stock into machines; near visual acuity to set up and adjust machines, examine workpieces and make accurate measurements, and depth perception to safely feed wood stock into machines; capacity to work while exposed to intense noises from woodworking machines; capacity to work under dusty conditions while exposed to hazards such as cutting tools, rotating stock and flying wooden particles; finger dexterity to manipulate adjusting screws and knobs when setting up woodworking machines and when measuring finished workpieces; eye-hand-foot co-ordination, depending upon equipment used, to depress foot pedals while simultaneously positioning or shaping workpieces.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; on-the-job training from three months to two years for most occupations, except for 8355-110 WOODWORKING-MACHINE SET-UP OPERATOR, which requires up to four years of experience and training.

ADVANCEMENT POSSIBILITIES: Workers in this chapter may, with experience and additional training, advance to occupations requiring higher skills within their individual cluster. Those with supervisory potential may advance to 8350-114 FOREMAN, PLANING, TURNING, SHAPING AND RELATED WOOD-MACHINING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations requiring similar skills within this chapter, or with limited additional training, to appropriate occupations in other chapters, for example, 8353-110 INSPECTOR, WOOD MACHINING, or 8353-110 BAND-SCROLL-SAW OPERATOR.

OCCUPATIONAL TITLES:

8355-110 WOODWORKING-MACHINE SET-UP OPERATOR
8355-114 SMOKING-PIPE MAKER
8355-118 BILLIARD-CUE MAKER
8355-122 SPINDLE CARVER
8355-126 BRIAR-BOWL TURNER
8355-130 WOOD-TURNING-LATHE OPERATOR
8355-134 ADZING-AND-BORING-MACHINE OPERATOR
8355-138 BORING-MACHINE OPERATOR
8355-142 CHUCKING-AND-BORING MACHINE OPERATOR
8355-146 CHUCKING-MACHINE OPERATOR
8355-150 DADO OPERATOR
8355-154 DOVETAIL-MACHINE OPERATOR
8355-158 LOUVER-ROUTER OPERATOR
8355-162 PLANER OPERATOR
8355-166 SHAPER OPERATOR
8355-170 SHAPER OPERATOR, AUTOMATIC
8355-174 SPLITTING-MACHINE OPERATOR, CORK
8355-178 TENONER OPERATOR
8355-182 TIMMING-AND-BORING MACHINE OPERATOR
8355-186 MORTISING-MACHINE OPERATOR
8355-190 WOODEN-BOWL-LATHE OPERATOR
8355-194 ROUTER OPERATOR
8355-198 SWING-TYPE-LATHE OPERATOR
8355-202 WOOD-CARVING-MACHINE OPERATOR
8355-206 SHUTTLE MAKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3 4	4	4	3 4	3 4	4	3	3 4	3 2	5 4	5 4	L-M47	I567	4-3	7-3	91	Y0

8356 - INSPECTING OCCUPATIONS, WOOD MACHINING 287, 684, 687

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the machining of wood into parts or products. Worker functions include: comparing finish and dimensions of furniture parts, woodenware, staves and other wooden articles to specifications; analyzing and evaluating such factors as balance, proportion and colour when grading finished products; manipulating gauges, templates, calipers and rules when measuring items; and handling wooden parts and products during quality-control work. Work activities include: examining items for cracks, knots and other defects; re-routing salvageable material to machine operators; and maintaining records of inspection results.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand inspection and operations methods, standards and specifications, and ability to make judgments concerning the quality of machined-wooden products; form perception to visually detect imperfections in finish and shape of machined-wooden products; eye-hand-finger co-ordination and manual dexterity to use templates, calipers and gauges to accurately measure or check the shape of workpieces, and to hold and turn products for close examination during routine inspection work; capacity to feel the smoothness of finish and imperfections in contour of products with the fingers; near visual acuity to detect defects such as knots, scratches, dents and cracks in wood; for 8546-110 GRADER, SMOKING PIPE, colour vision to distinguish differences in shade, colour and finish of products.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; one to two months of on-the-job training; six months or more of related experience in other types of woodworking occupations; for 8546-110 GRADER, SMOKING PIPE, from two to four years of on the job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 8350-110 FOREMAN, INSPECTING OCCUPATIONS, WOOD MACHINING, or to appropriate occupations requiring similar skills in other chapters such as 8540-114 FOREMAN, INSPECTING AND GRADING OCCUPATIONS: FABRICATING, ASSEMBLING AND REPAIRING WOOD PRODUCTS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations requiring similar skills in other chapters, for example, 8596-236 INSPECTOR-GRADER, HOCKEY STICKS.

OCCUPATIONAL TITLES:

8546-110T	GRADER, SMOKING PIPE
8356-110	INSPECTOR, WOOD MACHINING
8546-114T	STAVE INSPECTOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	4	4	4	4	5	5	S-L47	I	3-2	7-4	19	OY
	4					5					4						

8357 - WOOD SANDING OCCUPATIONS 684, 685, 686

WORK PERFORMED: This chapter includes occupations concerned with sanding a variety of wooden parts or products, except veneer and plywood panels. Worker functions include: manipulating workpieces against power-driver abrasive belts, disks or spindles, or manipulating portable sanders against surfaces of wooden articles; feeding flat or cylindrical wood stock into sanding machines; and comparing smoothness and finish of sanded items for acceptability to specifications. Work activities include: positioning and securing workpieces in machines; adjusting table height and angle, or belt tension; moving controls to start and stop machines; replacing worn sanding belts, disks or abrasive materials; and filling surface cracks with putty or plastic wood.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the methods of wood sanding, the use of powered and hand-held sanding equipment and to follow instructions; form perception to observe slight differences and imperfections in surface finish of wood; eye-hand-finger coordination to guide stock against sanding machines or to manipulate portable sanders; manual dexterity to adjust machine settings and to hold and guide portable disk or belt sanders or to feed stock into sanding machines; strength to perform light to medium work requiring lifting of wood stock occasionally weighing up to forty pounds; ability to work in a stooped position when using portable sanding equipment at or near floor level; ability to verify smoothness of sanded stock by feeling with fingers; visual acuity to determine if surfaces are properly sanded and contours shaped according to specifications; capacity for working adjacent to noisy woodworking machines; capacity to work under dusty conditions and exposed to hazards from abrasive elements and moving machine parts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: seven to ten years of general education; on-the-job training of from one to six months.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter who have supervisory potential may advance to 8356-110 INSPECTOR, WOOD MACHINING, or to 8350-122 FOREMAN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations within this chapter, or to other occupations requiring similar skills, such as those in Minor Group 835, WOOD MACHINING OCCUPATIONS or in Chapter 8393, FILING, GRINDING, BUFFING, CLEANING AND POLISHING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

8357-110	CONTOUR-SANDER OPERATOR	8357-126	SANDER, PORTABLE MACHINE
8357-114	TURNING-SANDER TENDER	8357-130	CYLINDER-SANDER FEEDER
8357-118	SANDER, MACHINE	8357-134	SANDING-MACHINE FEEDER
8357-122	LATHE SANDER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	3	5	4	4	3	5	5	L-M347	I567	3-2	4-2	193	23Y
			4	3													

8371-A CUTTING AND SHAPING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIAL

281, 381

WORK PERFORMED: This chapter includes occupations concerned with cutting, drilling or shaping clay, glass, stone and related materials to specified dimensions. Worker functions include: operating or tending special lathes, saws, drilling machines and boring mills or other equipment to machine clay, glass or stone materials; carving stone to precise design and shape by hand; compiling and analyzing data from drawings and specifications or sample of finished product to determine appropriate fabrication procedures; manipulating hand tools, power tools and special devices to shape materials into desired configuration; and comparing shape, finish and dimensions of completed articles to ensure acceptability to specified standards. Work activities include: laying out designs or cutting lines on workpieces; positioning workpieces in machines; selecting and installing cutting tools; moving controls to start, stop and adjust machines; and measuring finished items using calipers, rule and templates.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the techniques of cutting, shaping, carving and finishing stone; numerical ability to compute dimensions and locate reference points from specifications data when laying out work; spatial perception to examine finished product from sketches or drawings and to shape stone as desired; form perception to examine finished work to verify acceptability according to specifications; eye-hand-finger co-ordination, finger dexterity and manual dexterity, to use hammer, hand chisels, pneumatic chisel and other carving tools or measuring instruments to carve design into stone or cut and shape stone; physical capacity to perform medium to heavy work requiring frequent handling, lifting and reaching for items weighing up to fifty pounds; visual acuity and depth perception for accurate shaping and carving; adaptability to working in the presence of continuous noise and dust from hammers, chisels and tools operated by compressed air.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: seven to ten years of general education; from six months to three years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter with supervisory potential may advance to 8370-114 FOREMAN, CUTTING AND SHAPING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIALS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES. Transfer possibilities may be to other occupations requiring similar skills within this chapter or to appropriate occupations in Chapter 8373, ABRADING AND POLISHING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIALS.

OCCUPATIONAL TITLES:

8371-110	STONE CARVER
8371-118	STONECUTTER, HAND

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	2	4	2	2	2	4	3	M-H47	I-5	4-3	7-5	9018	0Y9
		4		3	3			3					I-57			901	0Y

8371-B CUTTING AND SHAPING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIAL

662, 682

WORK PERFORMED: This chapter includes occupations concerned with cutting, drilling or shaping clay, glass, stone and related materials to specified dimensions. Worker functions include: operating or tending special lathes, saws, drilling machines and boring mills or other equipment to machine clay, glass or stone materials; carving stone to precise design and shape by hand; compiling and analyzing data from drawings a and specifications or sample of finished product to determine appropriate fabrication procedures; manipulating hand tools, power tools and special devices to shape materials into desired configuration; and comparing shape, finish and dimensions of completed articles to ensure acceptability to specified standards. Work activities include: laying out designs or cutting lines on work pieces; positioning workpieces in machines; selecting and installing cutting tools; moving controls to start, stop and adjust machines; and measuring finished items using calipers, rule and templates.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the techniques for operating machines that cut, drill, plane, bore and shape clay, glass or stone; spatial perception to visualize machine settings or sequence of operations needed to cut or shape material to specified dimensions; form perception to inspect product for defects and to read measuring instruments; eye-hand-finger coordination, finger dexterity and manual dexterity to manipulate lay-out, measuring and hand tools, and to operate and adjust machines; physical capacity to perform medium to heavy work requiring frequent handling, lifting and reaching for items weighing up to fifty pounds; visual acuity and depth perception for accurate shaping and carving; adaptability to working in the presence of continuous noise and dust from hammers, chisels and tools operated by compressed air.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: seven to ten years of general education; from one to twelve months of on-the-job training; three to six months experience in helping or operating precision-machine tools.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter with supervisory potential may advance to 8370-114 FOREMAN, CUTTING AND SHAPING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIALS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. With some additional training, advancement for workers in Cluster B may be progressively to occupations requiring higher skills in those clusters or in Cluster A.

TRANSFER POSSIBILITIES: Transfer possibilities may be to other occupations requiring similar skills within this chapter or to appropriate occupations in Chapter 8373, ABRADING AND POLISHING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIALS.

OCCUPATIONAL TITLES:

8371-114	MACHINE OPERATOR, CEMENT PIPE	8371-142	WIRE-SAW OPERATOR
		8371-146	GREENWARE DRILLER
8371-122	GRINDING-STONE SHARPENER	8371-190	GLASS-CUT-OFF-MACHINE OPERATOR
8371-126	STONE SAWYER	8371-150	STONE DRILLER
8371-130	GREENWARE TURNER	8371-194	GLASS-LATHE OPERATOR
8371-134	GRINDING-WHEEL DRESSER		
8371-138	STONE PLANER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	$\underline{3}$	$\underline{3}$	4	$\underline{3}$	$\underline{4}$	$\underline{3}$	5	5	M-H47	I-57	3-2	6-3	91	20Y
			3					$\underline{3}$		4							

8373A-A ABRADING & POLISHING OCCUPATIONS: STONE, CEMENT, ABRASIVES & CLAY 381, 682, 684

WORK PERFORMED: This chapter includes occupations concerned with grinding and polishing stone, cement, abrasives and clay materials. Worker functions include: operating and tending machines that grind, polish or sandblast building or monumental stone; manipulating hand tools to level and smooth stone or to dress glazed ware; comparing dimensions, contours and finish of workpieces to ensure acceptability to specifications; working to closely specified tolerances when lapping granite-block surface plates; and compiling collimator readings in graphic form to indicate deviations at any point on plates. Work activities include: positioning and securing workpieces on work table or in machine; selecting and installing abrasive or polishing wheels; grinding abrasive wheels to specified dimensions; moving controls to start, stop and adjust machines; cutting inscriptions or decorative designs; and examining workpieces for such surface defects as rough spots, cracks and scratches.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the techniques required and operation or machines used to grind, polish or sandblast stone, dress glazed and decorated ware or grind abrasive wheels; form perception to see slight imperfections in surface and finish of workpieces or when using collimator to prepare graph to indicate tolerance deviation at any point; eye-hand co-ordination to rapidly and accurately make precise movements when grinding, polishing or cutting workpieces; finger dexterity to measure or feel workpieces; manual dexterity to set up and operate machines or turn valves to supply air or water to the equipment, and to handle tools such as levels, portable grinders and polishers; colour discrimination to match colours when mixing colouring compound with wax to fill surface imperfections of stone workpieces; capacity to do medium to heavy work lifting fifty to one hundred pounds with frequent lifting or pushing of tools or objects weighing up to fifty pounds; capacity to work in an environment where there is considerable noise and dust from machines and exposure to mechanical hazards, such as moving machinery or sharp cutting tools.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; from six months to three years of on-the-job training under the guidance of an experienced worker, or as an apprentice, depending on the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter with supervisory potential may advance to 8370-110 FOREMAN, ABRADING AND POLISHING OCCUPATIONS: CLAY, STONE AND RELATED MATERIALS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar skills within this chapter, or to appropriate occupations in Chapter 8371, CUTTING AND SHAPING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIAL.

OCCUPATIONAL TITLES:

8373-110	SURFACE-PLATE FINISHER
8373-114	STONE POLISHER, MACHINE
8373-118	STONE POLISHER, HAND
8373-122	CONTOUR GRINDER, MACHINE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	4	3	4	$\underline{3}$	4	$\underline{3}$	$\underline{4}$	$\underline{3}$	4	5	M-H347	I-567	4-3	7-5	910	Y0
		3	4	3				$\underline{3}$		5	$\underline{3}$					91	

8373B-A ABRADING, POLISHING AND COATING OCCUPATIONS: OPTICAL ELEMENTS

WORK PERFORMED: This chapter includes occupations concerned with grinding, polishing and coating optical elements such as lenses, reflectors, filters and prisms. Worker functions include: setting up, operating or tending one or more grinding or polishing machines; manipulating glass elements and adjusting controls of precision grinding, measuring, edging or coating equipment and optical measuring instruments; working precisely and skilfully to grind and polish optical elements; compiling information from work orders and prescriptions; and comparing thickness, contour, power and surface finish of finished lenses to specified standards. Work activities include: selecting and securing grinding or polishing tools in machines; mounting lenses in holder, block or collet; moving controls to start, stop and regulate equipment; coating optical elements with metal or chemical film to change reflective qualities; measuring lenses using precision measuring instruments; and examining them for chips, pits and scratches.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the basic theory of optics and to set up, operate or tend lens abrading, polishing, or coating machines; form perception to discern pertinent detail such as pits or scratches and other surface imperfections on optical elements, and to verify curvature and thickness of ground lens, using templates or gauges; eye-hand-finger co-ordination and manual dexterity to set up machines, adjust controls, position lenses and components in machines and turn hand controls; finger dexterity to rapidly and accurately handle small objects such as contact lenses, dial controls and hand spherometers; near visual acuity, depth perception and accommodation to set up and operate equipment to accurately grind lenses, and inspect lenses for defects and conformance to specifications; spatial perception to set up lens grinding and polishing machines in accordance with drawings and specifications, and to produce optical elements of the required dimensions and finish.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: nine to twelve years of general education; six months to one year of on-the-job training; two years of related experience as a Lens Grinder or Lens-Grinding Machine Tender; two to three years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this chapter with supervisory potential may advance to 8370-110 FOREMAN, ABRADING AND POLISHING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIALS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Advancement may also be possible to appropriate occupations in Chapter 8376, INSPECTING OCCUPATIONS: CLAY, GLASS AND STONE AND RELATED MATERIALS MACHINING.

TRANSFER POSSIBILITIES: Transfer may be possible to other occupations requiring similar skills within the chapter. With limited additional training, 8373-210 OPTICIAN may also transfer to 3154-110 DISPENSING OPTICIAN.

OCCUPATIONAL TITLES:

8373-206	LENS-GRINDER-POLISHER SET-UP MAN
8373-210	OPTICIAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	3	$\underline{3}$	$\underline{2}$	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	5	5	L-47	I	3	7	910	Y0
		4			$\underline{3}$						4						

8373C - ABRADING & POLISHING OCCUPATIONS: FLAT GLASS & GLASSWARE 682, 684, 685, 686

WORK PERFORMED: This chapter includes occupations concerned with grinding and polishing flat glass and glassware to specified finish and dimensions. Working functions include: tending machines, or manipulating mirrors or other articles against rotating abrasive belt, wheel or disk, to bevel and polish edges of flat glass or to smooth glassware surfaces; and comparing finish quality of ground or polished articles to specifications. Work activities include: selecting and installing appropriate grinding wheels or abrasive belts; moving hand or foot controls to start and stop machines and regulate flow of coolant or abrasives; examining articles for chips, cracks or roughness; and rinsing and cleaning finished items.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply procedures for operating or tending machines that grind and polish flat glass or glassware; form perception to examine grooves and bevelled edges of glass for roughness; eye-hand-finger co-ordination and manual dexterity to adjust machines and manipulate workpiece or machine controls to grind and polish glass; finger dexterity to rapidly and accurately control movement of glass workpiece or machine; capacity to perform medium to heavy work while occasionally lifting materials and portable equipment weighing from fifty to one hundred pounds and frequently lifting or pushing equipment or materials weighing up to fifty pounds; near-visual acuity to examine surfaces and edges of glass.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight years of general education; from one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter with supervisory potential may advance to 8370-110 FOREMAN, ABRADING AND POLISHING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIALS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfers may be to other occupations within this chapter or with some additional training to appropriate occupations in Chapters 8371, CUTTING AND SHAPING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIAL.

OCCUPATIONAL TITLES:

8373-162	GROOVE GRINDER	8373-178	GLASS-BEVELER TENDER
8373-166	EDGE FINISHER, HAND	8373-182	GLASS-EDGER TENDER
8373-170	GLASS POLISHER	8373-186	GLASS-POLISHER TENDER
8373-174	GLASSWARE GRINDER	8373-190	GLASS-GRINDING-MACHINE FEEDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	4	3	4	3	5	5	M-H47	I	3-2	3-2	193	2Y
			5		4	5	4		4	4							2Y3

8376-A INSPECTING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIALS MACHINING

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the cutting, shaping, abrading and polishing of clay, glass, stone and related materials. Worker functions include: working to precise standards when measuring characteristics of lenses; compiling data from specifications to determine curvature, diameter, power, focal length and dispersion required for lenses, and tolerances and inspection procedures; comparing dimensions and finish of sheet glass, mirrors or other articles with specifications to ensure acceptable standards are met; and handling materials during quality-control work. Work activities include: cleaning glass surfaces to facilitate inspection; examining articles for flaws such as pits and scratches; and marking defects with crayon or wax pencil.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and carry out inspection procedures for production lenses and lens systems using precision testing instruments, according to well defined standards; spatial perception to verify lens properties such as power, focal length, curvature or internal qualities, and to interpret these properties in terms of meeting specifications; form perception to see pertinent detail in lenses, such as pits, scratches, grey areas, chips, bubbles or cracks; clerical perception to correctly read written specifications and avoid perceptual errors in recording inspection results; eye-finger co-ordination and finger dexterity to make skilful finger movements when handling lenses and adjusting testing instruments; near visual acuity to examine plastic contact lenses or optical elements to detect minute defects or flaws.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to twelve years of general education; three to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement possibilities for workers in this chapter are limited. Experienced workers with supervisory potential may advance to 8370-110 FOREMAN, ABRADING AND POLISHING OCCUPATIONS: CLAY, GLASS, STONE AND RELATED MATERIALS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter are limited but some workers may transfer to occupations in Chapter 8373B, ABRADING, POLISHING AND COATING OCCUPATIONS: OPTICAL-ELEMENTS.

OCCUPATIONAL TITLES:

8376-110	CONTACT-LENS INSPECTOR
8376-114	OPTHALMIC-LENS INSPECTOR
8376-118	OPTICAL-ELEMENT INSPECTOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	3	3	2	4	3 4	3 4	4	5	4	S-47	I	3	4	913	YO

8391-A ENGRAVERS, ETCHERS AND RELATED OCCUPATIONS 361, 381, 481

WORK PERFORMED: This chapter includes occupations concerned with engraving and etching designs or lettering on glass, metals, plastics and a variety of other materials and imprinting or indenting designs or letterings on a custom or production basis. Worker functions include: manipulating hand tools and operating pantographs and powered engraving tools or cutting wheels to inscribe designs or lettering on nameplates, jewellery, glassware and other workpieces; tending sand blasting, stamping, impressing or etching equipment to abrade, press or etch designs or lettering on articles; working to close tolerances when laying out and cutting or etching designs and lettering; compiling information concerning measurements, position and details of designs; and comparing finished work for conformance to specifications. Work activities include: positioning and clamping workpieces for engraving; marking and masking surfaces to achieve desired etching effects or to protect unmarked surfaces; mixing etching solutions; observing action of machines and equipment; examining work for depth of cut or clearness of definition; removing protective coating and cleaning or washing away chips or acids.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the knowledge and techniques for engraving, etching, imprinting or indenting lettering or designs on a variety of materials; form perception to detect pertinent detail in workpieces, designs or lettering, and to make visual comparisons and see slight differences in widths and lengths of lines; eye-hand-finger co-ordination and finger dexterity to rapidly and accurately make precise movements when engraving by hand, controlling pantograph machines or etching equipment or when using small tools to imprint, indent or stamp workpieces; manual dexterity to move the hands easily and skilfully in placing and turning motions while laying out design or lettering, hand engraving or operating equipment; capacity to perform light to medium work requiring the lifting of glass or metal moulds or parts weighing up to fifty pounds; capacity to reach, handle, finger and feel while using hand tools and equipment to lay out, engrave, etch or imprint designs or lettering; near visual acuity and depth perception to impart and examine letters, numerals and designs of intricate nature on the surface of glass, metal, plastic or other materials; capacity to work inside while exposed to poor atmospheric conditions, such as dust from glass grinding or sandblasting, vapour and odors; possibility of burns from acid solutions; or injury from small metal chips from cutting tools; spatial perception to visualize the finished product from two dimensional sketches, diagrams, photographs or samples when engraving articles which may be curved, cylindrical or spherical in shape.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; a two to three-year apprenticeship program, or up to three years of on-the-job training under the supervision of an experienced worker.

ADVANCEMENT POSSIBILITIES: Workers in this chapter may advance to other occupations requiring higher skills within the chapter. Experienced workers with supervisory potential may advance to 8390-110 FOREMAN, ENGRAVERS, ETCHERS AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities may be to other occupations requiring similar skills with this chapter, or to appropriate occupations in Chapter 9514, PRINTING-ENGRAVING EXCEPT PHOTO ENGRAVING OCCUPATIONS.

OCCUPATIONAL TITLES:

8391-110	ENGRAVER, HAND	8391-122	DESIGN CUTTER, JEWELLERY
8391-190	CHASER	8391-126	GLASS ENGRAVER
8391-158	ETCHER, AIRCRAFT PARTS	8391-130	ENGRAVER, PANTOGRAPH
8391-114	ROLLER REPAIRMAN, TEXTILE	8391-194	IMPRINTER AND CASTER, SEALS
8391-118	ENGRAVER, DECORATIVE		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	2	4	3	3	3	5	5	7	I-6	4-3	7-4	91	OY
		4			3		2		2		4						

8393-C FILING, GRINDING, BUFFING, CLEANING AND POLISHING OCCUPATIONS, N.E.C. 684, 685

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with filing, grinding, buffing, cleaning and polishing materials, parts or products. Worker function include: setting up, operating or tending equipment such as grinders, tumbling barrels, polishers, sandblasters and ultrasonic cleaning machines; manipulating objects against rotating abrasive or polishing wheels, or holding powered tools against surfaces of objects to achieve desired finish; visually or tactually comparing finish to ensure acceptable standards are met; and compiling grinding or buffing data from specifications, to determine wheels or abrasive to be used. Work activities include: positioning workpieces on work bench or in machine; selecting appropriate hand tools, wheels, abrasives and solutions; sharpening tools such as scissors, shears, knives and chisels; chemically cleaning grease, scale, dirt and other foreign matter from articles to prepare them for further processing; and sandblasting metal objects to specified finish.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the techniques for grinding, buffing, polishing or cleaning objects made of a variety of materials and to select the appropriate procedures and tools; form perception to examine and measure finished workpieces for conformance to specifications; eye-hand-finger co-ordination to position and secure workpieces, handle machine controls or hold workpieces against abrasive or polishing wheels; manual dexterity to extend the arms to reach for and handle machine controls, workpieces and tools; sufficient strength to perform medium work requiring the lifting of workpieces, materials or tools weighing fifty pounds or guiding and controlling machines with frequent exertion equal to lifting twenty pounds; near visual acuity to guide and adjust machines or when examining workpieces for specified finish; capacity to work in proximity to loud noise; adaptability to working while exposed to hazards such as moving abrasive belts or wheels and dust from grinding or sandblasting operations.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to other occupations requiring higher skills within the chapter, such as from Cluster C to B, ro with some additional training to Cluster A. Those with supervisory potential may advance to 8390-114 FOREMAN, FILING, GRINDING, BUFFING, CLEANING AND POLISHING OCCUPATIONS, N.E.C. See also Chapter 990, FOREMEN OCCUPATIONS. for qualifications profile.

TRANSFER POSSIBILITIES: For most workers in this chapter, transfer possibilities without additional training are limited to other occupations within the chapter requiring similar skills.

OCCUPATIONAL TITLES:

8393-210	BUFFER, HAND
8393-142	BIT-SHARPENER TENDER
8393-110	MOULD DRESSER
8393-294	NIB FINISHER
8393-134	GRINDER AND SHARPENER
8393-146	BENCH GRINDER, HAND
8393-150	GRINDER-CHIPPER
8393-154	GRINDER-TRIMMER
8393-158	TOOL GRINDER
8393-234	GLASS-MOULD CLEANER
8393-298	POLISHER AND BUFFER, SHEET METAL
8393-162	GRINDER, MACHINE KNIFE
8393-238	METAL CLEANER, IMMERSION
8393-302	POLISHER, SLIDE FASTENERS
8393-240	CLEANER, METAL BLUING
8393-166	SWING GRINDER
8393-214	BUFFING-MACHINE TENDER
8393-170	GRINDER, COIL SPRINGS
8393-174	PELLET GRINDER
8393-178	PLATEN GRINDER
8393-306	TUMBLING-BARREL TENDER
8393-326	TUMBLING-MACHINE TENDER
8393-242	CARTRIDGE-PARTS CLEANER
8393-114	FILER, HAND

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	5	5	L-M47	I-567	3-2	4-2	931	2Y
			5		3	4	3			4							

8511-A ENGINE AND RELATED EQUIPMENT, FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C.

281, 481, 682

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with fabricating and assembling internal-combustion engines used in transportation, construction, agricultural or other types of vehicles, steam or gas turbines, transmission systems, and engine accessories such as water and fuel pumps, radiators and carburetors. Worker functions include: working to close tolerances to assemble, align and adjust mechnaical parts and components; manipulating hand and power tools and precision measuring instruments; operating machines such as arbor presses and grinders; analyzing data from blueprints and specifications to determine assembly procedures; computing dimensions and locating reference points; and comparing assembled units to ensure correct alignment and relationship of parts. Work activities include: reading work orders, drawings and specifications; and fitting, pressing, aligning, screwing or bolting to assemble, adjust or install parts, components or accessories.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply mechanical principles in engine construction and operation; spatial perception to visualize the relationship and arrangement of component parts; form perception to discern pertinent detail when fitting, aligning and adjusting engine parts and components and to examine parts and completed assemblies for defects; eye-hand-finger co-ordination and manual dexterity to use hand and power tools and precision measuring instruments when assembling, adjusting or securing parts; ability to move fingers and manipulate small objects such as locking pins, bolts and screws; physical strength to perform medium to heavy work, lifting up to fifty pounds, and to remain standing for extended periods; and agility to work in awkward positions such as kneeling, stooping or crouching, while reaching for, handling or fingering hand and power tools, parts, accessories or precision measuring instruments; good vision and depth perception for close-up work such as aligning and adjusting mechanical parts and setting up and adjusting machines; capacity to work inside while exposed to intermittent and continuous noises of

TRAINING AND ENTRY REQUIREMENTS: ten or more years of general education, preferably with some technical training acquired at a technical high or vocational training school; three months to one year of on-the-job training; for 8511-110 TURBINE FITTER, ten to twelve years of general education, preferably including technical high school; a four to five year apprenticeship program; or up to four years of on-the-job training under the guidance of a qualified trandesman.

ADVANCEMENT POSSIBILITIES: Experienced workers may advance to appropriate occupations in Chapter 8526, INSPECTING AND TESTING OCCUPATIONS, FABRICATING AND ASSEMBLING METAL PRODUCTS, N.E.C. Those with supervisory potential may advance to 8510-118 FOREMAN, ENGINE ASSEMBLY. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this cluster may, with very limited additional training, transfer to occupations requiring similar basic skills in other chapters, for example, 8511-110 TURBINE FITTER may transfer to 8526-238 TURBINE INSPECTOR AND TESTER, 8511-126 GEARED-AUTOMOTIVE-COMPONENTS ASSEMBLER may transfer to 8523-134 GEARCASE ASSEMBLER and 8511-118 AUTOMOTIVE-PRODUCTION FITTER may transfer to 8526-122 ENGINE TESTER.

OCCUPATIONAL TITLES:

8511-110	TURBINE FITTER
8511-114	INTERNAL-COMBUSTION-ENGINE ASSEMBLER
8511-118	AUTOMOTIVE-PRODUCTION FITTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	5	3	3	3	5	4	M-H47	I-5	4-3	8-4	910	YO
		4		2				4		4	5						

8511-B ENGINE AND RELATED EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C.

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with fabricating and assembling internal-combustion engines used in transportation, construction, agricultural or other types of vehicles, steam or gas turbines, transmission systems, and engine accessories such as water and fuel pumps, radiators and carburetors. Worker functions include: working to close tolerances to assemble, align and adjust mechanical parts and components; manipulating hand and power tools and precision measuring instruments; operating machines such as arbor presses and grinders; analyzing data from blueprints and specifications to determine assembly procedures; computing dimensions and locating reference points; and comparing assembled units to ensure correct alignment and relationship of parts. Work activities include: reading work orders, drawings and specifications; and fitting, pressing, aligning, screwing or bolting to assemble, adjust or install parts, components or accessories.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply bench or assembly-line techniques used in the assembly of internal-combustion or other types of engines and accessories; spatial perception to understand and visualize the arrangement of component parts and to position parts in specified relationship to one another; form perception to detect improper fitting parts or accessories; eye-hand-finger co-ordination and manual dexterity to assemble mechanical parts, make adjustments and tighten screws and bolts using hand and power tools; finger dexterity to manipulate small objects such as bolts, screws and component parts; physical strength to remain standing for extended periods, and perform light to medium work, lifting weights up to twenty-five pounds; agility to work in awkward positions such as kneeling, stooping and crouching while reaching for, handling and fingering hand and power tools and engine parts; good vision and depth perception for close-up work such as aligning and adjusting mechanical parts; capacity to work inside while exposed to noise of pneumatic tools and hydraulic presses.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one to three months of on-the-job training or related experience in assembly-line work.

ADVANCEMENT POSSIBILITIES: Workers in this chapter who acquire additional training may advance to higher skilled occupations within their respective cluster, or from Cluster B to A. Experienced workers may also advance to appropriate occupations in Chapter 8526, INSPECTING AND TESTING OCCUPATIONS, FABRICATING AND ASSEMBLING METAL PRODUCTS, N.E.C. Those with supervisory potential may advance to 8510-118 FOREMAN, ENGINE ASSEMBLY. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifcations profile.

TRANSFER POSSIBILITIES: Workers in this cluster may, with very limited additional training, transfer to occupations requiring similar basic skills in other chapters, for example, 8511-126 GEARED-AUTOMOTIVE-COMPONENTS ASSEMBLER may transfer to 8523-134 GEARCASE ASSEMBLER.

OCCUPATIONAL TITLES:

8511-126	GEARED-AUTOMOTIVE-COMPONENTS ASSEMBLER
8511-130	AUTOMOTIVE-ENGINE-ACCESSORIES ASSEMBLER
8511-134	ENGINE ASSEMBLER, PRODUCTION LINE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	3	5	3	3	3	5	5	L-M347	I-5	2	3-2	139	23Y
	3				4			4			4						

8513-A MOTOR VEHICLE FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C.

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with fabricating and assembling motor vehicles, trailers, automotive sub-assemblies and components other than engines and their accessories, utilizing manufactured constituent parts and assemblies. Worker functions include: working to close tolerances to lay out, measure, mark, cut, fit and install frames, panels, bulkheads, ductwork, doors and other vehicle parts; manipulating hand and power tools to install parts and accessories; and compiling and comparing data from drawings and work orders to assemble products as specified. Work activities include: installing engines, transmissions and other components; fitting, bolting, screwing, riveting and welding parts in position; and adjusting fabricated or assembled components.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the principles and techniques of motor vehicle construction and operation; spatial perception to visualize, from blueprints and specifications, the completed vehicle and the relationship and arrangement of vehicle parts and components; form perception to notice pertinent detail when fitting, adjusting and assembling vehicle parts and accessories; eye-hand-finger co-ordination, finger dexterity and manual dexterity to place and secure parts, make adjustments and manipulate hand and power tools and welding equipment; physical capacity to stand for extended periods while working, and strength to perform medium to heavy work requiring frequent lifting of automotive parts, assemblies or components weighing up to fifty pounds; agility to work in kneeling, crouching, stooping, or other positions while using tools to install parts and assemblies; near visual acuity, depth perception and accommodation to fit and adjust mechanical parts; capacity to work inside in proximity to loud, almost continuous noises from power tools and hammering; agility to climb and maintain balance on ladders and scaffolds.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve of general education; a three or four-year company sponsored apprenticeship program.

ADVANCEMENT POSSIBILITIES: Workers in this chapter may advance to occupations requiring higher skills within their individual cluster. Those with supervisory potential may advance to 8510-130 FOREMAN, MOTOR VEHICLE ASSEMBLY. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this cluster may with limited additional training, transfer to appropriate occupations elsewhere in Minor Group 851/852, FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS, N.E.C.

OCCUPATIONAL TITLES:

8513-110	AUTOMOTIVE BUILDER
8513-114	TRUCK-TRAILER BUILDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2 3	3	4	3	3	3	4	4	H-2347	I-5	4	7-6	91	Y01

8513-B MOTOR VEHICLE FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C. 684, 687

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with fabricating and assembling motor vehicles, trailers, automotive sub-assemblies and components other than engines and their accessories, utilizing manufactured constituent parts and assemblies. Worker functions include: working to close tolerances to lay out, measure, mark, cut, fit and install frames, panels, bulkheads, ductwork, doors and other vehicle parts; manipulating hand and power tools to install parts and accessories; and compiling and comparing data from drawings and work orders to assemble products as specified. Work activities include: installing engines, transmissions and other components; fitting, bolting, screwing, riveting and welding parts in position; and adjusting fabricated or assembled components.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the principles and techniques of motor vehicle construction and operation; spatial perception to visualize, from blueprints and specifications, the completed vehicle and the relationship and arrangement of vehicle parts and components; form perception to notice pertinent detail when fitting, adjusting and assembling vehicle parts and accessories; eye-hand-finger co-ordination, finger dexterity and manual dexterity to place and secure parts, make adjustments and manipulate hand and power tools and welding equipment; physical capacity to stand for extended periods while working, and strength to perform medium to heavy work requiring frequent lifting of automotive parts, assemblies or components weighing up to fifty pounds.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; on-the-job training ranging from one month to one year, depending on the complexity of the occupations.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to occupations requiring higher skills within their individual cluster, or from Cluster B to A. Those with supervisory potential may advance to 8510-130 FOREMAN, MOTOR VEHICLE ASSEMBLY. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in Cluster B may transfer to other occupations requiring similar skills within that cluster. Workers in Cluster B, whose work involves woodworking activities, may also transfer to appropriate occupations requiring similar basic skills in Minor Group 854, FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, WOOD PRODUCTS, or in Chapter 8781, CARPENTERS AND RELATED OCCUPATIONS. Similarly, workers in this cluster may with limited additional training, transfer to appropriate occupations elsewhere in Minor Group 851/852, FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS, N.E.C.

OCCUPATIONAL TITLES:

8513-118	TRAILER FINISHER, EXTERIOR
8513-122	TRAILER FINISHER, INTERIOR
8513-126	TRAILER-FRAME ASSEMBLER
8513-130	ASSEMBLER, CONVERTIBLE TOP
8513-134	AUTOMOTIVE ASSEMBLER
8513-138	FITTER AND ADJUSTER
8513-142	LEAF-SPRING ASSEMBLER
8513-146	WHEEL-ASSEMBLY INSTALLER, TRAILER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	$\underline{4}$	$\underline{4}$	5	$\underline{3}$	$\underline{3}$	$\underline{3}$	4	5	M-H347	I-5	3-2	5-2	193	2Y
	3		5		$\underline{3}$		$\underline{4}$	$\underline{4}$		5	4					13	2Y3

8515 - AIRCRAFT FABRICATING & ASSEMBLING OCCUPATIONS 380, 381, 681, 682, 684

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with assembling aircraft and aircraft subassemblies such as power plants, undercarriages, tails, wings, control linkages and hydraulic and pneumatic systems, normally utilizing previously manufactured parts and components. Worker functions include: working to close tolerances to lay out, install, align and adjust assemblies and components; manipulating hand and power tools and parts of subassemblies; compiling data from drawings and specifications; and comparing characteristics of assembled units with standards specified on drawings and production orders. Work activities include: fitting, drilling, reaming, screwing, bolting or riveting parts to assemble components; installing and adjusting assemblies using jigs, fixtures, templates and other work aids; bonding metal surfaces together using press or autoclave; sealing and testing tanks and pressurized compartments; and testing hydraulic and pneumatic systems.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply mechanical principles and aircraft assembly techniques; numerical ability to compute dimensions and locate reference points from specifications when laying out work; spatial perception to visualize the placement of structural members, the relative arrangement of static and moving parts and the complete assembly, as represented in blueprints and diagrams; form perception to monitor machine performance to detect malfunctions, to inspect finished assemblies, to read blueprints and to perform functional tests; eye-hand-finger co-ordination, finger dexterity and manual dexterity to use jigs, templates and hand and power tools with precision when drilling and riveting aircraft units and assemblies, and when assembling aircraft components; physical strength to perform light to medium work requiring frequent lifting and carrying of parts and tools weighing up to twenty pounds; agility to climb ladders and balance on scaffolding, and to work in awkward positions such as crouching or kneeling while reaching for component parts and using tools; near visual acuity to assemble and align small parts; capacity to work while exposed to loud intermittent or continuous noises from machinery or power tools.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: nine to twelve years of general education; three months to two years of on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to occupations requiring higher skills within this chapter. Those with supervisory potential may also advance to 8510-110 FOREMAN, AIRCRAFT ASSEMBLY. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar basic skills within this chapter, or with limited additional training, to appropriate occupations in Chapters 8511, ENGINE AND RELATED EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C., and 8526, INSPECTING AND TESTING OCCUPATIONS, FABRICATING AND ASSEMBLING METAL PRODUCTS, N.E.C.

OCCUPATIONAL TITLES:

8515-110	TAPE-CONTROLLED-RIVETING-MACHINE OPERATOR
8515-114	AIRCRAFT RIGGER
8515-118	AIRFRAME ASSEMBLER
8515-122	ASSEMBLER-INSTALLER, AIRCRAFT POWER PLANT
8515-126	INSTALLER, HYDRAULIC
8515-130	AIRCRAFT FITTER-ASSEMBLER, BENCH
8515-134	METAL-BONDING EQUIPMENT OPERATOR
8515-138	AIRFRAME SUBASSEMBLER
8515-142	AIRCRAFT SEALER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	3	3	3	2	3	4	3	3	2	4	5
		4	4	3	2			4	3	5	4

PA	EC	GED	SVP	INTS.	TEMPS.
L-M2347	I5	4-3	6-4	910 91	OY

8523-A INDUSTRIAL, FARM, CONSTRUCTION AND OTHER MECHANIZED EQUIPMENT AND MACHINERY FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C.

261, 281, 381

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with fabricating and assembling industrial, farm, and construction machinery and other mechanized equipment. Worker functions include: working to close tolerances when fitting, aligning and adjusting parts; manipulating hand and power tools to fasten parts together; and compiling and analyzing data from drawings or work orders to determine assembly specifications and procedures. Work activities include: laying out reference points and lines on structural parts; filing, grinding, lapping or scraping facing parts to ensure proper fit; bolting, screwing, riveting, welding, shrink-fitting or press-fitting parts together; installing piping for steam, hydraulic, cooling or lubrication systems; testing performance of completed units; and making adjustments as required.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply principles and practices of assembling motorized machinery and equipment and to follow instructions concerning sequence of assembly; numerical ability to apply shop mathematics to solve practical problems such as computing dimensions; spatial perception to visualize from diagrams and specifications the arrangement and relationship of parts and assemblies and their proper functioning; form perception to observe details such as irregularities in shape, size and finish of parts; eye-hand-finger co-ordination and manual dexterity to place and fit parts and assemblies in position and to use hand and power tools skilfully and quickly.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; for some occupations, a two to four-year apprenticeship program which may be provincially regulated, and one or more years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers with supervisory potential may advance to 8510-122 FOREMAN, INDUSTRIAL, FARM AND CONSTRUCTION MACHINERY ASSEMBLY. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Advancement possibilities may also be to appropriate occupations in Chapter 8526, INSPECTING AND TESTING OCCUPATIONS, FABRICATING AND ASSEMBLING METAL PRODUCTS, N.E.C.

TRANSFER POSSIBILITIES: Some possibilities for transfer may be to other occupations requiring similar basic skills within the chapter. Transfers may also be possible to appropriate occupations in Chapters 8584, INDUSTRIAL, FARM AND CONSTRUCTION MACHINERY MECHANICS AND REPAIRMEN; and 8791, PIPEFITTING, PLUMBING AND RELATED OCCUPATIONS, N.E.C.; or Minor Group 851/852 FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS, N.E.C.

OCCUPATIONAL TITLES:

8523-110	PROTOTYPE BUILDER
8523-114	LOCOMOTIVE BUILDER
8523-118	MACHINE BUILDER
8523-122	PIPE FITTER, TURBINES
8523-126	ATOMIC-FUEL-BUNDLE ASSEMBLER
8523-130	PIPE FITTER, RAILWAY CAR AND LOCOMOTIVE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	3	4	4	M-H2347	I-56	4-3	8-6	190	Y01
			4	2							5						

71

8523-B INDUSTRIAL, FARM, CONSTRUCTION AND OTHER MECHANIZED EQUIPMENT AND MACHINERY FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C.

381, 684

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with fabricating and assembling industrial, farm, and construction machinery and other mechanized equipment. Worker functions include: working to close tolerances when fitting, aligning and adjusting parts; manipulating hand and power tools to fasten parts together; and compiling and analyzing data from drawings or work orders to determine assembly specifications and procedures. Work activities include: laying out reference points and lines on structural parts; filing, grinding, lapping or scraping facing parts to ensure proper fit; bolting, screwing, riveting, welding, shrink-fitting or press-fitting parts together; installing piping for steam, hydraulic, cooling or lubrication systems; testing performance of completed units; and making adjustments as required.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the procedures for assembling machinery and equipment; spatial perception to visualize correct assembly procedures for parts and subassemblies from drawings and the relationship of parts to each other; form perception to perceive pertinent detail in parts and assemblies such as proper alignment, spacing, clearances and size; eye-hand-finger co-ordination and manual dexterity to place and fit parts and assemblies in position and to use hand and power tools skilfully and quickly; finger dexterity to manipulate small objects rapidly and accurately when measuring, installing, aligning and adjusting parts or components; physical strength to perform medium to heavy work requiring frequent lifting of parts and subassemblies weighing up to fifty pounds; capacity to stoop, kneel, crouch or crawl under, around or on top of machinery and equipment to reach particular work areas; capacity to reach for and handle parts, tools, controls and measuring instruments and to feel edges or surfaces to detect burrs and rough areas; near visual acuity and depth perception to fit and align parts and components; adaptability to working in close proximity to noises from pneumatic wrenches, power drills and welding equipment; adaptability to working conditions where the individual is exposed to various mechanical hazards such as moving mechanisms and slipping tools.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With experience and additional training, workers in Cluster B may advance to other occupations requiring higher skills within that cluster or to some occupations in Cluster A. Those with supervisory potential may also advance to 8510-122 FOREMAN, INDUSTRIAL, FARM AND CONSTRUCTION MACHINERY ASSEMBLY. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Advancement possibilities may also be to appropriate occupations in Chapter 8526, INSPECTING AND TESTING OCCUPATIONS, FABRICATING AND ASSEMBLING METAL PRODUCTS, N.E.C.

TRANSFER POSSIBILITIES: Some possibilities for transfer may be to other occupations requiring similar basic skills within the chapter. Transfers may also be possible to appropriate occupations in Chapters 8584, INDUSTRIAL, FARM AND CONSTURCTION MACHINERY MECHANICS AND REPAIRMEN; and 8791, PIPEFITTING, PLUMBING AND RELATED OCCUPATIONS, N.E.C.; or Minor Group 851/852 FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS, N.E.C.

OCCUPATIONAL TITLES:

8523-134	GEARCASE ASSEMBLER
8523-138	FARM-MACHINERY ASSEMBLER
8523-142	FARM-MACHINERY DISMANTLER
8523-146	GARDEN-MACHINERY ASSEMBLER
8523-150	RAILWAY-CAR TRIMMER
8523-154	RAILWAY-CAR-TRUCK ASSEMBLER
8523-158	SEWING-MACHINE ASSEMBLER
8523-162	SNOWMOBILE ASSEMBLER
8523-166	RAILWAY-CAR LINER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	4	5	M-347	I-5	2	3-2	139	2Y
			5			4	4	3		5							2Y3

8525 - BUSINESS AND COMMERCIAL MACHINES, FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C.

381, 684

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with fabricating and assembling typewriting, calculating, bookkeeping, adding, duplicating and other business and commercial machines. Worker functions include: manipulating hand and power tools, test equipment controls and measuring instruments to assemble machines; working precisely when fitting parts and adjusting mechanisms; compiling data from drawings, diagrams or inspection reports to determine assembly or adjustment procedures; and comparing operation of completed machines to specified standards. Work activities include: positioning and fitting, screwing, bolting or riveting parts or subassemblies together; and testing machines to ensure proper operation.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the interrelationship and functioning of machine parts, and to apply appropriate fabricating and assembling techniques; spatial perception to visualize the arrangement of parts and appropriate assembly procedures from drawings or work instructions; form perception to adjust clearances, tension, alignment and synchronization of machine parts; eye-hand-finger-co-ordination and manual dexterity to use hand and power tools, measuring devices and precision instruments when assembling and adjusting various machines; finger dexterity to manipulate small machine parts such as screws and keys and to connect wiring; physical capacity to perform light to medium work requiring the frequent lifting of objects weighing up to twenty pounds; near visual acuity to assemble small parts; colour vision to distinguish colour-coded wiring.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: nine to elven years of general education; two months to two years of related experience and on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Some experienced workers may, with additional training, advance to other occupations within this chapter or to occupations concern with inspecting, testing or repairing business machines, such as 8526-262 TYPEWRITER INSPECTOR, PARTS AND ASSEMBLIES and 8585-118 OFFICE-MACHINE SERVICEMAN. Those with supervisory potential may advance to 8510-114 FOREMAN, BUSINESS AND COMMERCIAL MACHINES ASSEMBLY. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of basic similarities in work performed, transfer possibilities may be to other occupations within the chapter. With limited additional training, transfer may also be possible to electrical or electronic equipment assembling occupations, such as 8531-148 ASSEMBLER, PORTABLE-ELECTRICAL APPLIANCE and 8534-122 ASSEMBLER, ELECTRONIC EQUIPMENT.

OCCUPATIONAL TITLES:

8525-110	ADJUSTER, KEYBOARD MACHINES
8525-114	PERIPHERAL-EQUIPMENT ASSEMBLER
8525-118	TYPEWRITER ALIGNER
8525-122	DUPLICATING-MACHINE ASSEMBLER
8525-126	KEYBOARD-MACHINE ASSEMBLER
8525-130	VENDING-MACHINE ASSEMBLER
8525-134	PERIPHERAL-EQUIPMENT SUB-ASSEMBLER
8525-138	TYPE-BAR-AND-SEGMENT ASSEMBLER
8525-142	TYPEWRITER-PARTS SALVAGE MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	3	3	5	5	L-M47	I	3-2	6-3	19	OY
	4	3	3	4													YO2

8526-A INSPECTING AND TESTING OCCUPATIONS, FABRICATING AND ASSEMBLING METAL PRODUCTS, N.E.C. 280, 281, 361, 381

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with quality-control activities in the fabrication and assembly of a wide variety of products, primarily made of metal, such as motor vehicles, engines and accessories, aircraft, business machines, precision instruments and industrial, farm and construction machinery. Worker functions include: compiling pre-inspection information from specifications and analyzing data obtained as a result of examinations and tests; working to close tolerances when measuring parts and testing performance of equipment; comparing structural and functional characteristics of finished products to specification or established standards; manipulating measuring instruments or controls of equipment during tests; tending specialized production test equipment; handling articles during inspection procedures and recording findings and recommendations on data sheets. Work activities include: studying drawings, work orders and instruction manuals to determine inspection or testing requirements; driving motor vehicles or operating equipment and machinery to detect performance defects; testing firearms; inspecting metal furniture for faulty material or workmanship; conducting destructive tests on products such as wire rope; and operating business machines to evaluate their performance.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand operating manuals, specifications and technical drawings, and to understand and apply the principles and precise techniques used in inspecting and testing metal products, parts and assemblies; numerical ability to make accurate calculations when checking measurements and recording test data; spatial perception to visualize the relationships of mechanical components from two dimensional drawings; finger dexterity to manipulate small measuring instruments, gauges and parts; ability to kneel, crouch and stoop to place or test mechanisms; form perception to note irregularities in size, shape, finish and alignment of metal components and assemblies, and detail in mechanical drawings; eye-hand-finger co-ordination and manual dexterity to operate and manipulate test instruments and hand tools and to handle products; capacity to perform light to medium work, requiring frequent lifting and carrying of metal products or test equipment weighing from ten to twenty pounds, with occasional lifting of objects up to fifty pounds; near visual acuity, depth perception and colour vision to inspect or examine shapes, sizes and finish of metal products.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; for some occupations, a four-year apprenticeship program as mechanic or machinist, and one or more years of on-the-job training, depending on the product being inspected or tested; for other occupations, six months to two years of on-the-job training and experience.

ADVANCEMENT POSSIBILITIES: With experience and additional training, workers in this chapter may advance to higher skilled occupations within their own cluster. Those with supervisory potential may also advance to appropriate occupations in Unit Group 8510, FOREMEN, FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS, N.E.C. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: With limited additional training, some workers in this chapter may transfer to other occupations requiring similar skills within their individual cluster. Transfer possibilities may also be to appropriate occupations requiring similar experience and basic skills elsewhere, for example, in Minor Group 851/852 FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS, N.E.C.

OCCUPATIONAL TITLES:

8526-236 MACHINE TRY-OUT MAN
8526-238 TURBINE INSPECTOR & TESTER
8526-194 DYNAMOMETER TESTER, ENGINES
8526-198 PROTOTYPE TESTER, OUTBOARD MOTORS
8526-242 AIRCRAFT INSPECTOR, ASSEMBLIES & INSTALLATIONS
8526-246 INSTRUMENT INSPECTOR & TESTER
8526-278 GASOLINE-PUMP TESTER
85 6-202 ENGINE-QUALITY-CONTROL INSPECTOR
8526-110 FINAL INSPECTOR, TRUCK TRAILER
8526-250 MAJOR-ASSEMBLY INSPECTOR
8526-254 WATCH INSPECTOR
8526-262 TYPEWRITER INSPECTOR, PARTS & ASSEMBLIES

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	2	4	3	3	3	5	5	L-M347	I5	4-3	8-5	91	0Y
				3	3			4		4	4						

8526-C INSPECTING AND TESTING OCCUPATIONS, FABRICATING AND ASSEMBLING METAL PRODUCTS, N.E.C. 585, 587, 685, 686, 687

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with quality-control activities in the fabrication and assembly of a wide variety of products, primarily made of metal, such as motor vehicles, engines and accessories, aircraft, business machines, precision instruments and industrial, farm and construction machinery. Worker functions include: compiling pre-inspection information from specifications and analyzing data obtained as a result of examinations and tests; working to close tolerances when measuring parts and testing performance of equipment; comparing structural and functional characteristics of finished products to specification or established standards; manipulating measuring instruments or controls of equipment during tests; tending specialized production test equipment; handling articles during inspection procedures and recording findings and recommendations on data sheets. Work activities include: studying drawings, work orders and instruction manuals to determine inspection or testing requirements; driving motor vehicles or operating equipment and machinery to detect performance defects; testing firearms; inspecting metal furniture for faulty material or workmanship; conducting destructive tests on products such as wire rope; and operating business machines to evaluate their performance.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply routine inspection and test procedures; form perception to note irregularities in size, shape, finish and alignment of metal components and assemblies, and detail in mechanical drawings; eye-hand-finger co-ordination and manual dexterity to operate and manipulate test instruments and hand tools and to handle products; capacity to perform light to medium work, requiring frequent lifting and carrying of metal products or test equipment weighing from ten to twenty pounds, with occasional lifting of objects up to fifty pounds; near visual acuity, depth perception and colour vision to inspect or examine shapes, sizes and finish of metal products.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one month to one year of on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: With experience and additional training, workers in this chapter may advance to higher skilled occupations within their own cluster, or from Cluster C to B and to A. Those with supervisory potential may also advance to appropriate occupations within their own cluster, or from Cluster C to B and to A. Those with supervisory potential may also advance to appropriate occupations in Unit Group 8510, FOREMEN, FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS, N.E.C. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: With limited additional training, some workers in this chapter may transfer to other occupations requiring similar skills within their individual cluster. Transfer possibilities may also be to appropriate occupations requiring similar experience and basic skills elsewhere, for example, in Minor Group 851-852 FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS, N.E.C.

OCCUPATIONAL TITLES:

8526-130	FINAL INSPECTOR, AUTOMOBILE
8526-310	METAL-FURNITURE INSPECTOR
8526-166	BULLET AND CARTRIDGE-INSPECTOR
8526-322	TIME TESTER, WATCHES
8526-326	BALL-BEARINGS TESTER
8526-174	SHOTGUN-PROOF TESTER
8526-170	CARTRIDGE EXAMINER
8526-330	HARDWARE, TOOL & CUTLERY INSPECTOR
8526-334	STRUCTURAL AND ORNAMENTAL-METAL WORK INSPECTOR
8526-134	WATER-LEAK EXAMINER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	4	5	5	S-M47	I5	3-2	5-2	193	Y23
			5		3	5	3				4						

8527-A PRECISION INSTRUMENTS AND RELATED EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C.

261, 381, 582, 681

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with fabricating and assembling precision instruments and related equipment, such as scientific and optical instruments, measuring, indicating and controlling devices, surgical, medical and dental apparatus, photographic equipment, timepieces and similar items. Worker functions include: working to close tolerances while assembling and adjusting parts and assemblies to ensure precise alignment, calibration and function; manipulating hand and power tools while positioning components and fitting and securing parts; compiling information from specifications and other instructions concerning assembly procedures; and comparing the performance of finished items to specification requirements. Work activities include: assembling cams, gears, shafts, plates, dials, pointers and other parts of mechanisms; joining or securing parts by clamping, soldering, bolting, pressing, staking, screwing or riveting; drawing scale markings on instrument dials by hand; and calibrating and adjusting finished instruments and components, such as scales, gauges, switches and hairsprings.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability for occupations in Cluster A, to understand mechanical theory and instructions, and to apply the methods and procedures for fabricating and assembling complicated instruments and equipment, and for occupations in Cluster B to understand and apply routine instructions, methods and procedures for assembling, testing and adjusting parts and assemblies, spatial perception to visualize how components fit together, their position and the relationships to moving and fixed parts; form perception to observe pertinent detail in parts, such as length of springs, trueness in seating and shape of circular coils, loose connections, burrs or other irregularities on surfaces of minute parts; eye-hand-finger co-ordination to accurately assemble and position parts and use wrenches, pliers, tweezers, soldering irons and other hand tools; finger dexterity to rapidly and accurately manipulate, position and secure hairsprings, mainsprings, balance wheels, hour hands and other small parts of instruments; manual dexterity to skilfully assemble, install and screw, bolt, rivet or otherwise secure items in position; near visual acuity to position minute parts and to accurately calibrate instruments.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten or more years of general education, preferably with emphasis on mathematics and technical subjects; six months to three years of on-the-job training and related experience, depending on the occupation.

ADVANCEMENT POSSIBILITIES: Workers in this chapter may advance to other occupations requiring higher skills within their individual cluster.
Advancement for experienced workers may also be to appropriate occupations in Unit Group 8510, FOREMEN, FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS N.E.C. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Experienced workers may, with additional training, also transfer to some occupations within their individual cluster. Possibilities for transfer may also be to appropriate occupations requiring similar basic skills in other chapters of Minor Group 851/852, FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS, N.E.C.

OCCUPATIONAL TITLES:

8527-110 SCALE CALIBRATOR
8527-114 INSTRUMENT-PANEL ASSEMBLER-INSTALLER
8527-118 SCALE ASSEMBLER
8527-122 HAIRSPRING TRUER
8527-126 LASER-TUBE ASSEMBLER
8527-130 TEMPERATURE-CAPILLARY CHARGER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	2	3	4	3	3	3	5	4	S-L47	I6	4-3	7-5	190	OY1
		4	3	3		5		2								19	OY

8527-B PRECISION INSTRUMENTS & RELATED EQUIPMENT FABRICATING & ASSEMBLING OCCUPATIONS, N.E.C.

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with fabricating and assembling precision instruments and related equipment, such as scientific and optical instruments, measuring, indicating and controlling devices, surgical, medical and dental apparatus, photographic equipment, time-pieces and similar items. Worker functions include: working to close tolerances while assembling and adjusting parts and assemblies to ensure precise alignment, calibration and function; manipulating hand and power tools while positioning components and fitting and securing parts; compiling information from specifications and other instructions concerning assembly procedures; and comparing the performance of finished items to specification requirements. Work activities include: assembling cams, gears, shafts, plates, dials, pointers and other parts of mechanisms; joining or securing parts by clamping, soldering, bolting, pressing, staking, screwing or riveting; drawing scale markings on instrument dials by hand; and calibrating and adjusting finished instruments and components, such as scales, gauges, switches and hairsprings.

APTITUDES AND CAPACITIES: learning ability to understand and apply routine instructions, methods and procedures for assembling, testing and adjusting parts and assemblies; spatial perception to visualize how components fit together, their position and the relationships to moving and fixed parts; form perception to observe pertinent detail in parts, such as length of springs, trueness in seating and shape of circular coils, loose connections, burrs or other irregularities on surfaces of minute parts; eye-hand-finger co-ordination to accurately assemble and position parts and use wrenches, pliers, tweezers, soldering irons and other hand tools; finger dexterity to rapidly and accurately manipulate, position and secure hairsprings, mainsprings, balance wheels, hour hands and other small parts of instruments; manual dexterity to skilfully assemble, install and screw, bolt, rivet or otherwise secure items in position; near visual acuity to position minute parts and to accurately calibrate instruments; eye-hand-foot co-ordination for occupations involving the operation of machines and presses equipped with hand and foot controls.

TRAINING AND ENTRY REQUIREMENTS: 8 to 10 years of general education; 1 to 6 months of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: Workers may advance to other occupations requiring higher skills within the cluster or to Cluster A. Advancement may also be appropriate to occupations in Unit Group 8510 FOREMEN, FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS, N.E.C. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster. Experienced workers may, with limited additional training, also transfer to some occupations within the cluster or to Cluster A. Possibilities for transfer may also be to appropriate occupations requiring similar basic skills in other chapters of Minor Group 851/852 FABRICATING AND ASSEMBLING OCCUPATIONS, METAL PRODUCTS, N.E.C.

OCCUPATIONAL TITLES:

8527-134 AUTOMATED-VALVE ASSEMBLER
8527-138 CLOCK AND WATCH ASSEMBLER
8527-142 HEAT-SENSOR ASSEMBLER
8527-146 PUT-IN-BEAT ADJUSTER
8527-150 THERMOSTAT-AND-PRESSURE SWITCH CALIBRATOR
8527-154 DIE-CASTING ASSEMBLER, CLOCK PARTS
8527-158 PHOTOGRAPHIC-EQUIPMENT ASSEMBLER
8527-162 SOLENOID-VALVE ASSEMBLER
8527-166 CLOCK-AND-TIMER-MOVEMENT ASSEMBLER, AUTOMATED LINE
8527-170 CLOCK AND WATCH FINISHER
8527-174 COMPRESSED-AIR-&-GAS REGULATOR ASSEMBLER
8527-178 DIAL INSTALLER, CLOCK AND WATCH
8527-180 DIAL MARKER
8527-182 ELECTRIC-CLOCK ASSEMBLER
8527-186 HAIRSPRING CALIBRATOR
8527-188 STAKER, SMALL PARTS
8587-122T CASER
8527-190 LEVEL-VIAL SETTER
8527-192 PRECISION-PRESS OPERATOR
8527-194 REGULATOR, TIMEPIECE
8527-198 THERMOSTAT-CAPILLARY SEALER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	4	4	4	3	3	4	3	3	3	5	5
						5				4	4

PA	EC	GED	SVP	INTS.	TEMPS.
S-L47	I	3-2	4-2	139	OY2

8531-B ELECTRICAL EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS

281, 381

WORK PERFORMED: This chapter includes occupations concerned with fabricating and assembling electrical products and equipment such as motors, transformers, batteries, light bulbs and air conditioners, refrigerators and other electrical household appliances. Worker functions include: manipulating hand tools, power tools, soldering equipment and testing devices during assembly operation; working to close tolerances when fitting, aligning and adjusting parts; setting up, operating or tending equipment such as coil-welding machines, pasting machines and impregnating tanks; compiling and analyzing data from drawings, work orders or specifications to determine fabrication or assembly procedures; comparing electrical and structural characteristics of completed products to ensure specified standards are met and handling parts and materials during fabrication processes. Work activities include: positioning parts in specified relationship to each other using hands, tweezers or fixtures; bolting, screwing, soldering, welding or otherwise fastening parts together; installing wiring; and testing completed units for defective operation.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the techniques for operating equipment used to fabricate component parts of electrical products, and to interpret production drawings and apply reasoning when following specifications or instructions for assembling and adjusting electrical equipment such as motors, generators and controls; spatial perception to visualize the arrangement of parts and configuration of finished articles from descriptive material and drawings; form perception to note poorly fitted assemblies, imperfections in finish, or other defects in equipment such as missing or incorrect parts; eye-hand-finger co-ordination to use hand tools to assemble and install components in electrical appliances and equipment and to make functional tests and adjustments; finger dexterity to pick up and install small parts such as screws, insulating washers, gaskets and terminal lugs; manual dexterity to position parts when setting up production equipment, assembling motors, generators and distribution panels, or when mounting switches and control units such as timers and thermostats; capacity to perform light to medium work involving frequent lifting of objects weighing up to twenty pounds; near visual acuity for assembly work, and normal colour vision to identify coded electrical wire; adaptability to working in situations where there is risk of injury from contact with operating machinery or burns from acid; capacity to work in stooping, kneeling or crouching position when assembling or mounting equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; from three months to two years of on-the-job training, depending on the complexity of the work.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to more highly skilled occupations within this chapter. Those with supervisory potential may advance to 8530-118 FOREMAN, ELECTRICAL EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers who assemble electrical equipment may transfer, because of similarity of work performed, to some occupations in other chapters which are concerned with the production, installation or repair of electrical or electronic equipment.

OCCUPATIONAL TITLES:

8531-110 FITTER-ASSEMBLER, ENVIRONMENTAL CHAMBER
8531-292 ASSEMBLER, AUXILIARY-POWER AND MOTOR-GENERATOR-SET
8531-388 ASSEMBLER, HEAVY-DUTY TRANSFORMER
8531-384 FITTER-ASSEMBLER, ELECTRICAL-CONTROL EQUIPMENT
8531-296 ASSEMBLER, MOTOR & GENERATOR
8531-248 ASSEMBLER, ELECTRIC SIGN
8531-392 CALIBRATOR, ELECTRICAL CONTROLS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	3	5	4	M347	I6	4-3	7-5	901	YO
			4							4							

8531-C ELECTRICAL EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS 382, 682

WORK PERFORMED: This chapter includes occupations concerned with fabricating and assembling electrical products and equipment such as motors, transformers, batteries, light bulbs and air conditioners, refrigerators and other electrical household appliances. Worker functions include: manipulating hand tools, power tools, soldering equipment and testing devices during assembly operations; working to close tolerances when fitting, aligning and adjusting parts; setting up, operating or tending equipment such as coil-welding machines, pasting machines and impregnating tanks; compiling and analyzing data from drawings, work orders or specifications to determine fabrication or assembly procedures; comparing electrical and structural characteristics of completed products to ensure specified standards are met and handling parts and materials during fabrication processes. Work activities include: positioning parts in specified relationship to each other using hands, tweezers or fixtures; bolting, screwing, soldering, welding or otherwise fastening parts together; installing wiring; and testing completed units for defective operation.

APTITUDES AND CAPACITIES: Workers in chapter C require: learning ability to understand the techniques for operating equipment used to fabricate component parts of electrical products, and to interpret production drawings and apply reasoning when following specifications or instructions for assembling and adjusting electrical equipment such as motors, generators and controls; spatial perception to visualize the arrangement of parts and configuration of finished articles from descriptive material and drawings; form perception to note poorly fitted assemblies, imperfections in finish, or other defects in equipment such as missing or incorrect parts; eye-hand-finger coordination to use hand tools to assemble and install components in electrical appliances and equipment and to make functional tests and adjustments; finger dexterity to pick up and install small parts such as screws, insulating washers, gaskets and terminal lugs; manual dexterity to position parts when setting up production equipment, assembling motors, generators and distribution panels, or when mounting switches and control units such as timers and thermostats; capacity to perform light to medium work involving frequent lifting of objects weighing up to twenty pounds; near visual acuity for assembly work, and normal colour vision to identify coded electrical wire; adaptability to working in situations where there is risk of injury from contact with operating machinery or burns from acid.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; from three months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to more highly skilled occupations within this chapter. Those with supervisory potential may advance to 8530-118 FOREMAN, ELECTRICAL EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers who assemble electircal equipment may transfer, because of similarity of work performed, to some occupations in other chapters which are concerned with the production, installation or repair of electrical or electronic equipment.

OCCUPATIONAL TITLES:

8531-304 ARMATURE BANDER
8531-308 COIL WINDER
8531-168 PLATE FORMER, LEAD-ACID STORAGE BATTERY
8531-396 ASSEMBLER, HEAVY-DUTY CAPACITORS
8531-400 HEATING-ELECMENT COIL FORMER
8531-404 IMPREGNATOR, ELECTRICAL EQUIPMENT
8531-172 BATTERY-PLATE STACKER, MACHINE
8531-176 PASTING-MACHINE OPERATOR
8531-320 UNDERCUTTING-MACHINE OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	5	3	4	3	5	4	L-M47	I567	3	6-4	91	YO
	4			3	4			3		4	5						

8533-A ELECTRICAL AND RELATED EQUIPMENT, INSTALLING AND REPAIRING OCCUPATIONS, N.E.C.

261, 281, 381

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with installing and repairing electrical equipment such as lighting fixtures, motors and controls, domestic appliances, office machines, and automotive, aircraft, rail or marine electrical components and wiring. Worker functions include: working to close tolerances when measuring the characterisitics of electrical circuits and adjusting equipment to ensure that operating specifications are met; manipulating tools, screws, wires and components when installing or removing and disassembling equipment for repair; analyzing data obtained by observation of equipment in operation, by examination of parts or from electrical tests; comparing conditions of units and results of tests with specifications and handling parts while cleaning and examining them prior to use. Work activities include: replacing defective items such as motor brushes, heating elements and relays; preparing and pulling wires through conduit; preparing and installing cable assemblies and wiring harnesses in aircraft, and equipment such as business machines; installing automobile ignition parts, bulbs and voltage regulators; replacing plates of large commercial storage batteries; cleaning and dismantling equipment for repair; and testing, topping up and recharging storage batteries.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to acquire and apply knowledge of electrical theory, to understand and follow technical instructions, and reasoning ability to diagnose equipment malfunctions based on test results and other data; spatial perception to visual equipment layout or the relationship of parts from circuit diagrams or drawings; form perception to recognize structural or mechanical defects in electrical equipment; eye-hand-finger co-ordination and manual dexterity to handle parts and to use hand tools, power tools and test equipment; finger dexterity to pick up and install small parts such as springs, split-pins and spacers; strength, depending on the occupation involved, to perform light to heavy work involving the handling of tools and the lifting of equipment weighing up to one hundred pounds; capacity to work in stooping, kneeling or crouching positions when installing or repairing electrical equipment; good hearing to recognize sounds that indicate equipment malfunction; colour vision to identify colour-coded wires; adaptability to working in situations involving exposure to high-voltage wiring and possible falls from ladders.

TRAINING AND ENTRY REQUIREMENTS: 10 to 12 years of general education; a 3 to 4 year apprenticeship program, or similar form of on-the-job training. Apprenticeships are normally provincially regulated; completion of certification requirements.

ADVANCEMENT POSSIBILITIES: Workers with supervisory potential may advance to 8530-122 FOREMAN, ELECTRICAL EQUIPMENT INSTALLATION AND REPAIR. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile. Additionally those who acquire the necessary qualifications may advance to 2165-126 ELECTRICAL-ENGINEERING TECHNOLOGIST or 2791-126 VOCATIONAL TEACHER, TECHNICAL SUBJECTS.

TRANSFER POSSIBILITIES: Because of the similarity in basic skills, only limited additional training may be required for transfer between several occupations within the cluster, for example 8533-110 ELECTRICAL REPAIRMAN may transfer to 8533-122 REPAIRMAN, ELECTRIC MOTOR. Experienced workers may also transfer to occupations concerned with inspecting or testing of electrical equipment, such as 8536-118 TESTER, MOTORS AND CONTROLS and 8536-178 INSPECTOR, MOTOR AND GENERATOR. Those with the necessary qualifications may also transfer to 2165-226 ELECTRICAL-ENGINEERING TECHNICIAN, and 8733-130 ELECTRIC METERMAN.

OCCUPATIONAL TITLES:

8533-110 ELECTRICAL REPAIRMAN
8533-114 ELECTRICIAN, AUTOMOTIVE
8533-122 REPAIRMAN, ELECTRIC MOTOR
8533-126 REPAIRMAN, MAJOR APPLIANCE
8533-130 ELECTRICIAN, AIRCRAFT
8533-134 ELECTRICIAN, MARINE EQUIPMENT
8533-138 ELECTRICIAN, RAIL TRANSPORT
8533-142 REPAIRMAN, ELECTICAL INSTRUMENTS
8533-146 WIRER & REPAIRMAN, OFFICE MACHINES
8533-150 REPAIRMAN, REFRIGERATION UNIT
8533-154 INSTALLER & REPAIRER, AUTOMATIC-PIN-SETTING MACHINE
8533-158 INSTALLER-SERVICEMAN, DENTAL EQUIPMENT
8533-162 REPAIRMAN, AIR-CONDITIONER
8533-166 REPAIRMAN, ELECTRIC TOOL
8533-170 REPAIRMAN, PORTABLE APPLICANCE
8533-174 REPAIRMAN, STORAGE BATTERY

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3 2	3 2	4	3	3	3	5 4	4	L-M347	I6	4-3	7-6	910	Y01

8533-C ELECTRICAL AND RELATED EQUIPMENT, INSTALLING AND REPAIRING OCCUPATIONS, N.E.C.

684, 687

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with installing and repairing electrical equipment such as lighting fixtures, motors and controls, domestic appliances, office machines, and automotive, aircraft, rail or marine electrical components and wiring. Worker functions include: working to close tolerances when measuring the characteristics of electrical circuits and adjusting equipment to ensure that operating specifications are met; manipulating tools, screws, wires and components when installing or removing and disassembling equipment for repair; analyzing data obtained by observation of equipment in operation, by examination of parts or from electrical tests; comparing conditions of units and results of tests with specifications and handling parts while cleaning and examining them prior to use. Work activities include: replacing defective items such as motor brushes, heating elements and relays; preparing and pulling wires through conduit; preparing and installing cable assemblies and wiring harnesses in aircraft, and equipment such as business machines; installing automobile ignition parts, bulbs and voltage regulators; replacing plates of large commercial storage batteries; cleaning and dismantling equipment for repair; and testing, topping up and recharging storage batteries.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow instructions furnished in oral or written form; spatial perception to note the relationship of parts before disassembly operations; form perception for such activities as detecting defective components and cleaning parts; eye-hand-finger co-ordination and manual dexterity to handle parts and tools; finger dexterity to pick up and position small parts; strength, depending on the occupation involved, to perform light to heavy work involving the handling of tools and the lifting of equipment weighing up to one hundred pounds; capacity to work in stooping, kneeling or crouching positions when installing or repairing electrical equipment; good hearing to recognize sounds that indicate equipment malfunction; colour vision to identify colour-coded wires; adaptability to working in situations involving exposure to high-voltage wiring and possible falls from ladders.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; one to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers who acquire experience and additional training may advance from occupations in Cluster C to B and to A., for example, 8533-230 ELECTRIC-MOTOR-REPAIRMAN HELPER may advance to 8533-122 REPAIRMAN, ELECTRIC MOTOR. Workers with supervisory potential may also advance to 8430-122 FOREMAN, ELECTRICAL EQUIPMENT INSTALLATION AND REPAIR. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile. Additionally, those who acquire the necessary qualifications may advance to 2165-126 ELECTRICAL-ENGINEERING TECHNOLOGIST or 2791-126 VOCATIONAL TEACHER, TECHNICAL SUBJECTS.

TRANSFER POSSIBILITIES: Because of similarity in basic skills, only limited additional training may be required for transfer between several occupations within the cluster. Experienced workers may also transfer to occupations concerned with inspecting or testing of electrical equipment, such as 8536-118 TESTER, MOTORS AND CONTROLS and 8536-178 INSPECTOR, MOTOR AND GENERATOR. Those who have the necessary qualifications may also transfer to 2165-226 ELECTRICAL-ENGINEERING TECHNICIAN and 8733-130 ELECTRIC METERMAN.

OCCUPATIONAL TITLES:

8533-214 ELECTRICAL REPAIRMAN HELPER
8533-218 ELECTRICIAN HELPER, AUTOMOTIVE
8533-222 DOMESTIC-AIR-CONDITIONER-REPAIRMAN HELPER
8533-226 ELECTRIC-TRUCK SERVICEMAN
8533-230 ELECTRIC-MOTOR-REPAIRMAN HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	4	4	M-H347	I-B6	3-2	3	139	23Y
			5				3			5	5						

8534-B ELECTRONIC EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS 382, 682, 684

WORK PERFORMED: This chapter includes occupations concerned with fabricating and assembling electronic parts and equipment such as capacitors, television picture tubes and radio receivers. Worker functions include: setting up, operating or tending equipmnet such as electron tube coating and exhausting machines, filament-winding machines and sealing machines to process or fabricate products; manipulating hand tools and power tools to assemble electronic equipment; comparing finished products or testing equipment to specified standards to detect defects; compiling information from specifications or work orders and analyzing information in order to set up and repair production machines. Work activities include: installing gears, cams and cutters in production machines; moving controls to start, stop and regulate equipment; bolting, screwing, riveting, soldering or otherwise fastening parts together to assemble products, verifying dimensions or alignment of parts using precision measuring instruments; mounting speakers, switches, chassis and other electronic components in cabinets; checking circuits; testing assembled equipment; and replacing defective components.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow instructions furnished in written or diagrammatic form for the assembly or operation of machines to fabricate electronic components; spatial perception to visualize the assembly and final product from drawings; form perception for such activities as observing oscilloscope wave patterns and examining products for defects; eye-hand-finger co-ordination and manual dexterity to assemble products or to manipulate machine controls; finger dexterity to fabricate wiring harnesses, or to pick up and correctly position small components; near visual acuity to install and examine small items; colour vision to recognize and connect colour-coded wires as detailed in production drawings.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten years of general education; three months to one year of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: Advancement for workers in this chapter may be to occupations requiring higher skills within their individual cluster or with experience and some additional training for occupations in Clusters B to A. Advancement may also be to appropriate occupations in other chapters, for example, 8536-150 INSPECTOR AND TESTER, TELEVISION RECEIVER and 8536-162 INSPECTOR, QUARTZ CRYSTAL. Workers with supervisory potential may advance to 8530-126 FOREMAN, ELECTRONIC EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations within the individual clusters or to occupations requiring similar basic skills in other chapters, for example, 8531-244 SET-UP MAN, LAMP-MAKING MACHINES; 8531-148 ASSEMBLER, PORTABLE-ELECTRICAL APPLIANCE; and 8539-154 ASSEMBLER, ELECTRICAL-WIRE GROUP.

OCCUPATIONAL TITLES:

8534-118 ALIGNER, RADIO AND TELEVISION RECEIVER
8534-122 ASSEMBLER, ELECTRONIC EQUIPMENT
8534-130 CARBON-RESISTOR-PROCESSING-EQUIPMENT OPERATOR
8534-134 ASSEMBLER, ELECTRONIC ORGAN
8534-138 CRYSTAL-DICING-SAW OPERATOR
8534-142 AGER, ELECTRON TUBE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3 4	3	4	3 4	3 4	3	5	5 4	I-47	I	3	5-3	91	OY

8534-C ELECTRONIC EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS 684, 685, 686

WORK PERFORMED: This chapter includes occupations concerned with fabricating and assembling electronic parts and equipment such as capacitors, television picture tubes and radio receivers. Worker functions include: setting up, operating or tending equipment such as electron tube coating and exhausting machines, filament-winding machines and sealing machines to process or fabricate products; manipulating hand tools and power tools to assemble electronic equipment; comparing finished products or testing equipment to specified standards to detect defects; compiling information from specifications or work orders and analyzing information in order to set up and repair production machines. Work activities include: installing gears, cams and cutters in production machines; moving controls to start, stop and regulate equipment; bolting, screwing, riveting, soldering or otherwise fastening parts together to assemble products, verifying dimensions or alignment of parts using precision measuring instruments; mounting speakers, switches, chassis and other electronic components in cabinets; checking circuits; testing assembled equipment; and replacing defective components.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow written, diagrammatic or oral work instructions to fabricate and assemble electronic equipment components; form perception to detect product defects; eye-hand-finger co-ordination and manual dexterity to assemble components and to skilfully use hand tools and soldering equipment; finger dexterity to bend, position and attach leads to terminals, to thread cassette tapes or to perform similar tasks rapidly and accurately; physical capacity to perform sedentary to medium work, involving frequent lifting of objects weighing up to twenty pounds; visual acuity for close-up work during assembly procedures; colour vision to identify colour-coded components.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; one week to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for workers in this chapter may be to occupations requiring higher skills within their individual cluster or with experience and some additional training for occupations in Clusters C and B to A. Advancement may also be to appropriate occupations in other chapters, for example 8536-150 INSPECTOR AND TESTER, TELEVISION RECEIVER and 8536-162 INSPECTOR, QUARTZ CRYSTAL. Workers with supervisory potential may advance to 8530-126 FOREMAN, ELECTRONIC EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations within the individual clusters or to occupations requiring similar basic skills in other chapters, for example, 8531-244 SET-UP MAN, LAMP-MAKING MACHINES; 8531-148 ASSEMBLER, PORTABLE-ELECTRICAL APPLIANCE; and 8539-154 ASSEMBLER, ELECTRICAL-WIRE GROUP.

OCCUPATIONAL TITLES:

8534-146	ASSEMBLER, ANTENNA
8534-150	ASSEMBLER, CHASSIS
8534-154	ASSEMBLER, CRYSTAL-UNIT
8534-158	CHASSIS INSTALLER
8534-162	CONVEYOR-LINE WORKER, PICTURE-TUBE ASSEMBLY
8534-166	CRYSTAL CALIBRATOR
8534-170	ETCHER AND PLATER, QUARTZ CRYSTAL
8534-174	ASSEMBLER, CAPACITOR
8534-178	PLATER, VACUUM-EVAPORATION PROCESS
8534-182	ASSEMBLER, PRINTED CIRCUIT
8534-186	ASSEMBLER, RECORD CHANGER
8534-190	ASSEMBLER, SPEAKER
8534-194	ASSEMBLER, ELECTRON TUBE
8534-196	SEALING-MACHINE TENDER
8534-202	EXHAUST-&-SEALING MACHINE TENDER
8534-206	ASSEMBLER, COLOUR-PICTURE TUBE
8534-210	ASSEMBLER, FILTER
8534-214	ASSEMBLER, PICTURE-TUBE GUN
8534-218	ASSEMBLER, POTENTIOMETER
8534-222	ASSEMBLER, SEMICONDUCTOR
8534-226	ETCHER, PRINTED-CIRCUIT BOARD
8534-230	LAMINATOR, TELEVISION-PICTURE-TUBE
8534-234	STEM BEADER, ELECTRON TUBE
8534-238	ASSEMBLER, TAPE CARTRIDGE AND CASSETTE
8534-242	COLOUR CODER, COMPONENT
8534-246	COMPONENT-INSERTING-MACHINE TENDER
8534-250	COMPONENT-LEAD FORMER
8534-254	DIP-SOLDERING-MACHINE TENDER
8534-258	RIM BANDER, TELEVISION-PICTURE TUBE
8534-262	MACHINE FEEDER, CARBON-COMPOSITION RESISTORS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	$\underline{4}$	5	$\underline{3}$	$\underline{3}$	$\underline{3}$	5	4	S-M47	I	3-2	4-2	139	23Y
			4		$\underline{3}$	4	$\underline{4}$	4			5						

8535-A ELECTRONIC AND RELATED EQUIPMENT INSTALLING AND REPAIRING OCCUPATIONS, N.E.C. 261, 281

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with installing and repairing electronic equipment such as aircraft electronic systems, sound recording and audio-visual equipment, radio and television broadcasting equipment and related communications or other electronic apparatus. Worker functions include: analyzing data from job specifications to determine installation procedures or analyzing symptoms of equipment failures to determine cause of malfunction; working to close tolerances when installing or repairing electronic equipment; manipulating hand tools, test prods, controls of meters and electronic testing devices; and comparing test results to specified standards. Work activities include: studying circuit diagrams, instruction manuals or job orders prior to installation or repair work; installing equipment such as public address systems and video and sound recorders; locating defects visually or malfunctions by use of test equipment; replacing assemblies or defective parts such as modules, transformers, resistors, diodes tubes and transistors; and calibrating equipment.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to acquire and apply a knowledge of electrical and electronic theory, to understand and follow technical instructions and reasoning ability to diagnose equipment malfunctions; numerical ability to perform arithmetic computations accurately when planning installation layouts or when calibrating equipment; spatial perception to visualize the relationship of parts and assemblies or installation layouts from drawings or circuit diagrams; form perception to detect visible defects such as damaged components, loose or broken wires and poor connections; eye-hand-finger co-ordination and manual dexterity to handle tools, soldering equipment and test meters; finger dexterity to handle and fit small items such as machine screws, wires, nuts, washers and miniature components, often into awkward or confined spaces; physical capacity to perform light to medium work, involving frequent lifting of objects weighing up to twenty pounds; good hearing to recognize satisfactory performances or faults such as hum and distortion in audio amplifiers and receivers; near visual acuity to see printed identification data on small items such as capacitors and transitors; colour vision to identify colour-coded items such as resistors and electrical wire; adaptability to work on equipment while exposed to possible injury from high voltages and radio-frequency power.

TRAINING AND ENTRY REQUIREMENTS: 12 to 13 years of general education; a 2 to 3 year course in electronics at a technical institute or community college, and on-the-job training for a sufficient period to become acquainted with applicable specialization requirements; or 2 to 4 years of on-the-job training and courses at a vocational school, depending on the occupation.

ADVANCEMENT POSSIBILITIES: With experience, and in some cases additional training, workers in this chapter may advance to higher skilled occupations within their individual cluster. Those who acquire the necessary qualifications may advance to 2165-130 ELECTRONIC-ENGINEERING TECHNOLOGIST or to 2791-122 VOCATIONAL TEACHER, TECHNOLOGICAL SUBJECTS. Experienced workers with supervisory ability may advance to 8530-130 FOREMAN, ELECTRONIC EQUIPMENT INSTALLATION AND REPAIR. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: With limited additional training, workers may transfer to other occupations requiring similar skills within the cluster. Experienced workers may also find opportunities for transfer to occupations concerned with inspecting and testing of electronic equipment, such as 8536-122 TESTER, SYSTEMS and 8536-134 INSPECTOR AND TESTER, AIRCRAFT-ELECTRONIC EQUIPMENT. Other possibilities for transfer may be to 2165-230 ELECTRONIC-ENGINEERING TECHNICIAN and 8537-114 RADIO SERVICEMAN.

OCCUPATIONAL TITLES:

8535-110 INSTALLER, AIRCRAFT-ELECTRONIC-EQUIPMENT
8535-114 REPAIRMAN, ELECTRONIC-EQUIPMENT
8535-118 INSTALLER & REPAIRER, AUDIO-VISUAL EQUIPMENT
8535-122 REPAIRMAN, RADIO-COMMUNICATIONS EQUIPMENT
8535-126 REPAIRMAN, TELEVISION-STUDIO EQUIPMENT
8535-130 INSTALLER & REPAIRER, PUBLIC ADDRESS SYSTEM
8535-134 REPAIRMAN, NUCLEONIC-CONTOLLER
8535-138 REPAIRMAN, AUTOMATED-PROCESSING EQUIPMENT
8535-142 HEARING-AID REPAIRMAN
8535-146 PRODUCTION REPAIRMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3 4	2 3	3	4	3	3	3	5	4	L-M467	I6	4-3	7-6	901	OY

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with installing and repairing electronic equipment such as aircraft electronic systems, sound recording and audio-visual equipment, radio and television broadcasting equipment and related communications or other electronic apparatus. Worker functions include: analyzing data from job specifications to determine installation procedures or analyzing symptoms of equipment failures to determine cause of malfunction; working to close tolerances when installing or repairing electronic equipment; manipulating hand tools, test prods, controls of meters and electronic testing devices; and comparing test results to specified standards. Work activities include: studying circuit diagrams, instruction manuals or job orders prior to installation or repair work; installing equipment such as public address systems and video and sound recorders; locating defects visually or malfunctions by use of test equipment; replacing assemblies or defective parts such as modules, transformers, resistors, diodes tubes and transistors; and calibrating equipment.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply instructions furnished in written or diagrammatic form; spatial perception to visualize correct parts-relationships from drawings; form perception to detect structural defects in parts and equipment; eye-hand-finger co-ordination and manual dexterity to skilfully use hand tools, power tools and soldering equipment; finger dexterity to pick up and position small items often in awkward spaces; physical capacity for sedentary to medium work, involving frequent lifting of objects weighing up to twenty pounds; near visual acuity to identify small items by their type or part number; colour vision to identify colour-coded items such as resistors and capacitors; adaptability to work on equipment while exposed to possible injury from high voltages or the risk of falls from ladders and antenna towers.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one month to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With experience, and in some cases additional training, workers in this chapter may advance to higher skilled occupations within their individual cluster, or from Cluster B to A. Those who acquire the necessary qualifications may advance to 2165-130 ELECTRONIC-ENGINEERING TECHNOLOGIST or to 2791-122 VOCATIONAL TEACHER, TECHNOLOGICAL SUBJECTS. Experienced workers with supervisory ability may advance to 8530-130 FOREMAN, ELECTRONIC EQUIPMENT INSTALLATION AND REPAIR. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: With limited additional training, workers in this cluster may transfer to other occupations requiring similar skills within the cluster. Experienced workers may also find opportunities for transfer to occupations concerned with inspecting and testing of electronic equipment, such as 8536-122 TESTER, SYSTEMS and 8536-134 INSPECTOR AND TESTER, AIRCRAFT-ELECTRONIC EQUIPMENT. Other possibilities for transfer may be to 2165-230 ELECTRONIC-ENGINEERING TECHNICIAN and 8537-114 RADIO SERVICEMAN.

OCCUPATIONAL TITLES:

8535-150 ANTENNA RIGGER
8535-154 RADIO-COMMUNICATIONS-EQUIPMENT-REPAIRMAN HELPER
8535-158 CALIBRATOR, WIRE-WOUND RESISTORS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	4	3	4	3	5	4	S-M47	I-B6	3-2	5-2	913	OY2
	4				4					4							

8536-A INSPECTING AND TESTING OCCUPATIONS: FABRICATING, ASSEMBLING, INSTALLING AND REPAIRING, ELECTRICAL, ELECTRONIC AND RELATED EQUIPMENT

261, 281, 381, 384, 484, 684

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the fabrication, assembly, installation and repair of electrical, electonic and related equipment. Worker functions include: working to close tolerances when testing or inspecting parts or equipment; compiling data from drawings and work orders to determine applicable standards and procedures; comparing the electrical, electronic or physical characteristics of articles to specification; analyzing inspection and test results; manipulating measuring devices and controls of test equipment; and handling equipment or parts undergoing examination. Work activities include: preparing test and inspection facilities for use; disassembling rejected items to determine cause of failure; correcting minor defects found during inspection; making recommendations regarding rework of rejected items; and reporting test equipment malfunctions.

APTITUDES AND CAPACITIES: learning ability to understand the operation of electrical and electronic equipment such as motors and controls, domestic appliances and radio, television and communications equipment, to apply the appropriate quality-control methods, to understand the significance of test results and to determine the acceptability of products according to specifications; form perception to observe factors that indicate lack of quality such as poorly plated hardware or solder spashes; eye-hand-finger co-ordination to accurately position test leads and adjust escilloscope controls, meters or other test equipment; finger dexterity to handle small parts and delicate items such as hearing-aid subassemblies, lamp filaments and quartz crystal wafers; manual dexterity to use micrometers, calipers or other hand tools and for activities such as placing equipment in holding jogs; capacity to perform sedentary to medium work involving frequent lifting of objects weighing up to 20 pounds; visual acuity for close-up work such as inspecting printed circuit board wiring; colour vision to identify colour-coded wires and components; adaptability to working with live circuits where there is danger of electric shock and where safe working practices are often specified.

TRAINING AND ENTRY REQUIREMENTS: 10 to 12 years of general education; 1 to 4 years of on-the-job training, or a company sponsored apprenticeship for similar periods, depending on the occupation.

ADVANCEMENT POSSIBILITIES: Workers may advance to other occupations requiring higher skills within the cluster. Those who acquire the necessary qualifications may advance to 2165-226 ELECTRICAL-ENGINEERING TECHNICIAN; or to 2165-230 ELECTRONIC-ENGINEERING TECHNICIAN. Workers with supervisory potential may advance to appropriate occupations in Unit Group 8530 FOREMEN: FABRICATING, ASSEMBLING INSTALLING AND REPAIRING OCCUPATIONS, ELECTRICAL, ELECTRONIC AND RELATED EQUIPMENT. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Worker may transfer to occupations requiring similar skills within the cluster. Experienced workers may also transfer to appropriate occupations in other chapters, for example, 8536-130 INSPECTOR AND TESTER, AIRCRAFT-ELECTRONIC EQUIPMENT, may transfer to 8535-110 INSTALLER, AIRCRAFT-ELECTRONIC-EQUIPMENT.

OCCUPATIONAL TITLES:

8536-110 TESTER, CONTROL-PANEL
8536-114 ELECTRICAL INSPECTOR, LOCOMOTIVE
8536-118 TESTER, MOTORS & CONTROLS
8536-122 TESTER, SYSTEMS
8536-126 TESTER, TRANSFORMER
8536-130 INSPECTOR AND TESTER, AIRCRAFT-ELECTRICAL EQUIPMENT
8536-134 INSPECTOR & TESTER, AIRCRAFT-ELECTRONIC EQUIPMENT
8536-138 TESTER, LEAD-ACID STORAGE BATTERY
8536-142 INSPECTOR, HEARING AID
8536-146 PROCESS INSPECTOR & TESTER
8536-150 INSPECTOR & TESTER, TELEVISION RECEIVER
8536-154 INSPECTOR & TESTER, ELECTRON TUBE
8536-158 INSPECTOR & TESTER, HOME-GARDENING & SNOW REMOVAL UNITS
8536-162 INSPECTOR, QUARTZ CRYSTAL
8536-166 INSPECTOR, CARBON PRODUCTS
8536-170 INSPECTOR, COMPONENTS
8536-174 INSPECTOR, HOUSEHOLD APPLIANCE
8536-178 INSPECTOR, MOTOR AND GENERATOR
8536-182 INSPECTOR, REFRIGERATION UNIT
8536-186 TESTER, AIR-CONDITIONING-UNIT
8536-190 TESTER, LIGHT BULB
8536-194 TESTER, ELECTRICAL CONTRACTS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	3	3	$\underline{3}$	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	5	4	S-M47	I6	4-3	8-5	91	OY
			4	4	$\underline{2}$			4			5						

8536-B INSPECTING AND TESTING OCCUPATIONS: FABRICATING, ASSEMBLING, INSTALLING AND REPAIRING, ELECTRICAL, ELECTRONIC AND RELATED EQUIPMENT 384, 664, 684

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the fabrication, assembly, installation and repair of electrical, electronic and related equipment. Worker functions include: working to close tolerances when testing or inspecting parts or equipment; compiling data from drawings and work orders to determine applicable standards and procedures; comparing the electrical, electronic or physical characteristics of articles to specifications; analyzing inspection and test results; manipulating measuring devices and controls of test equipment; and handling equipment or parts undergoing examination. Work activities include: preparing test and inspection facilities for use; disassembling rejected items to determine cause of failure; correcting minor defects found during inspection; making recommendations regarding rework of rejected items; and reporting test equipment malfunctions.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand inspection techniques and follow routine test procedures as specified for items such as printed-circuit boards, battery chargers, thermostats and wet and dry batteries; form perception to detect unsatisfactory conditions such as soldering defects, loose hardware and marred finishes; eye-hand-finger co-ordination to accurately measure and verify dimensions of parts, bend wires to correct their routing in equipment, make electrical connections and set or adjust controls of test devices; finger dexterity to pick up small parts and to inspect delicate items such as electron tube stem assemblies and lamp filaments; manual dexterity to grasp, turn and hold or place articles in optimum position for examination and to use hand tools to make minor adjustments; near visual acuity for inspection of small parts such as lamp filaments or record player mechanisms; colour vision to identify coded wire leads in wiring harnesses.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may advance to other occupations requiring higher skills within the cluster, or with experience and additional training, from Cluster B to A. Those who acquire the necessary qualifications may advance to 2165-226 ELECTRICAL-ENGINEERING TECHNICIAN; or to 2165-230 ELECTRONIC-ENGINEERING TECHNICIAN. Workers with supervisory potential may advance to appropriate occupations in Unit Group 8530 FOREMEN: FABRICATING, ASSEMBLING, INSTALLING AND REPAIRING OCCUPATIONS, ELECTRICAL, ELECTRONIC AND RELATED EQUIPMENT. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to occupations requiring similar skills within the cluster. Experienced workers may also transfer to appropriate occupations in other chapters.

OCCUPATIONAL TITLES:

8536-198 INSPECTOR, ELECTRICAL CONTROLS
8536-202 INSPECTOR, ELECTRONIC UNIT
8536-206 INSPECTOR, ELECTRON-TUBE-STEM-ASSEMBLIES
8536-210 TESTER, DRY-CELL BATTERY
8536-214 TESTER, PICTURE TUBE
8536-218 BATTERY-CHARGER TESTER, HEAVY DUTY
8536-222 INSPECTOR, AUTOMOTIVE-WIRING-HARNESS
8536-226 TESTER, ELECTRONIC COMPONENTS
8536-230 TESTER, QUARTZ-CRYSTAL UNIT
8536-234 TESTER, TEMPERATURE-ACTUATED CONTROLS
8536-238 INSPECTOR, LAMP PARTS
8536-242 HELPER, MOTOR TESTING
8536-246 INSPECTOR & TESTER, RECORD PLAYER
8536-250 INSPECTOR, LEAD-ACID BATTERY PARTS
8536-254 INSPECTOR, PRINTED-CIRCUIT BOARD
8536-258 INSPECTOR, SCREEN & APERTURE-MASK ASSEMBLY
8536-262 TESTER, ELECTRICAL-WIRE INSULATION
8536-266 INSPECTOR, ELECTRIC-CLOCK COMPONENTS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	4	4	4	4	5	4	S-L47	I	3-2	4-3	193	OY2
	3	3						3	3								

8537 - RADIO AND TELEVISION REPAIRMEN

WORK PERFORMED: This chapter includes occupations concerned with repairing radio and television receivers, tape recorders, phonographs and related equipment. Worker functions include: analyzing data obtained by listening, examination or testing to identify nature of malfunctions and locate faulty parts; working precisely when performing tests and fitting replacement parts; and manipulating hand tools, test prods and controls of meters, oscilloscopes, signal generators and other testing devices. Work activities include: querying customers regarding malfunctions; listening to sound or observing television picture to detect faults; testing electron tubes, resistors and other components; and adjusting or replacing defective items.

APTITUDES AND CAPACITIES: Radio and Television Repairmen require: learning ability to acquire a knowledge of the principles of electronics and the operation of radio and television receivers and ability to reason and apply judgment when analyzing and correcting malfunctions or making adjustments to equipment; spatial perception to visualize space and mounting requirements for replacement parts to ensure correct relationship with adjacent components; form perception to detect indications of defects such as charred resistors and corroded switch contacts, or to precisely position parts and components; eye-hand-finger co-ordination to manipulate alignment tools and adjust tuned circuits in response to visual displays from oscilloscopes, electrical meters and other test equipment; finger dexterity to handle small components; manual dexterity to use soldering equipment and test-lead prods in confined spaces, and to plug-in items such as electron tubes, transistors and modules; colour discrimination for 8537-110 TELEVISION REPAIR SERVICEMAN to adjust shades and colour contrasts; strength to perform light to medium work requiring frequent lifting of objects weighing up to twenty pounds; capacity to work in awkward positions when installing or servicing equipment; good hearing to detect distortion in sound reproduction equipment such as audio-amplifiers radio and television receivers; near visual acuity and colour vision to read identity markings and colour codes on small components such as transistors, resistors and capacitors; adaptability to situations where risk of electric shock is present.

TRAINING AND ENTRY REQUIREMENTS: Radio and Television Repairmen normally require: ten to twelve years of general education; a four-year apprenticeship program which may provincially regulated; or a one to two year course at a technical institute or trade school and one year or more of on-the-job training; completion of certification or licencing requirements.

ADVANCEMENT POSSIBILITIES: With experience and some additional training, workers in this cluster may advance to 2165-230 ELECTRONIC-ENGINEERING TECHNICIAN. Those with supervisory potential may advance to 8530-134 FOREMAN, RADIO AND TELEVISION REPAIR. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Experienced workers who acquire knowledge of business practices may become self-employed by operating their own sales and service facilities.

TRANSFER POSSIBILITIES: Experienced workers in this chapter may, with limited additional training, transfer to appropriate occupations in Chapters 8535, ELECTRONIC AND RELATED EQUIPMENT INSTALLING AND REPAIRING OCCUPATIONS, N.E.C., and 8536, INSPECTING AND TESTING OCCUPATIONS: FABRICATING, ASSEMBLING, INSTALLING AND REPAIRING, ELECTRICAL, ELECTRONIC AND RELATED EQUIPMENT.

OCCUPATIONAL TITLES:

8537-110 TELEVISION REPAIR SERVICEMAN
8537-114 RADIO SERVICEMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	2	4	3	3	3	5	3 4	L-M3467	I6	4	7-6	901	YO

8538 - OCCUPATIONS IN LABOURING & OTHER ELEMENTAL WORK: FABRICATING, ASSEMBLING, INSTALLING & REPAIRING ELECTRICAL, ELECTRONIC & RELATED EQUIPMENT

886, 887

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in the manufacture, installation and repair of electrical, electronic and related equipment. Worker functions include: feeding parts and partially finished items into production machines, and offbearing products; and lifting, moving or carrying materials or products between work areas. Work activities include: filling trays with parts for further processing; placing objects on conveyors; attaching wire leads to terminals; fitting clamps; segregating defective parts; and cleaning work areas.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply simple instructions and work procedures; eye-hand-finger coordination to correctly position parts, such as clamps to resistor cores and to insert rivets and actuate trigger of rivet gun; manual dexterity to feed and offbear products from production machines and handle parts at a rate that meets acceptable output levels; strength to perform light to medium work requiring frequent lifting of objects weighing up to twenty pounds; visual acuity to safely feed material, position or insert parts into production machines; adaptability to a variety of physical hazards, for example, exposure to moisture, fumes and for battery workers toxic dusts, or proximity to moving equipment by those who feed or offbear materials from machines.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight years of general education; on-the-job training ranging from a short demonstration for some workers and up to one month for others.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs and advancement is normally to higher skilled occupations in Minor Group 853, FABRICATING, ASSEMBLING, INSTALLING AND REPAIRING OCCUPATIONS: ELECTRICAL, ELECTRONIC AND RELATED EQUIPMENT; for example, 8531-444 ASSEMBLER, TRANSFORMER-STATIC-PLATE; 8533-230 ELECTRIC-MOTOR-REPAIRMAN HELPER; 8534-218 ASSEMBLER, POTENTIOMETER; 8535-158 CALIBRATOR, WIRE-WOUND RESISTORS: and 8539-198 WIRE-STRIPPING-AND-CUTTING-MACHINE TENDER, AUTOMATIC.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to other occupations in labouring and elemental work concerned with fabricating, assembling or repairing products, for example, 8528-110 TINWARE WORKER and 8598-114 LABOURER GENERAL, ASSEMBLY LINE.

OCCUPATIONAL TITLES:

8538-110	BATTERY-ACID DUMPER	8538-118	TAKE-OFF-MAN, BATTERY PLATES
8538-114	DRY-CELL-ASSEMBLY-MACHINE FEEDER	8538-122	RESISTOR-LEAD-WIRE ASSEMBLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	5	5	4	4	5	4	4	4	5	5	L-M47	I467	1	2	31	23
			4				3				4						23Y

8541-A CABINET AND WOOD FURNITURE MAKERS

WORK PERFORMED: This chapter includes occupations concerned with fabricating, assembling and repairing cabinets, doors and frames for doors and windows, and other wooden household, store and office furniture. Worker functions include: analyzing data from drawings and specifications to determine type of stock and dimensions or machining required; working precisely to lay out parts on wood stock and mark cutting lines for machining; setting up, operating and tending a variety of common and special woodworking machines; manipulating hand and power tools to fit, join and assemble parts; and comparing finished articles to ensure conformance to specifications. Work activities include: repairing surface defects on wooden articles; simulating antique finish on furniture; weaving chair seats from cane, rattan or reed; and fitting and installing latches, hinges, handles and other hardware.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to identify different types of wood, understand their characteristics and apply the techniques and procedures involved in the construction, assembly and repair of wooden furniture, fixtures and equipment; spatial perception to visualize, from drawings or other specifications, the required shapes and arrangement of parts used to form the complete unit; form perception to observe pertinent detail when matching wood stock and examining products for surface defects; eye-hand co-ordination to skilfully use hand and power tools and woodworking machines; finger dexterity to manipulate objects such as measuring and marking devices, machine controls, fasteners and hardware; manual dexterity to mark, cut, assemble and secure wooden components and to install hardware on finished products; capacity to perform light to medium work; near visual acuity to accurately lay out and mark wood stock, to match colour and grain and to precisely machine wood to specified dimensions and shapes; adaptability to working indoors while exposed to constant noise from woodworking machines; adaptability to working conditions subject to possible hazards from woodworking machines and wood-dust in the atmosphere.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: nine to ten years of general education; a three to four-year apprenticeship program or similar form of on-the-job training; or a two to three-year program at a vocational school and on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced Cabinetmakers with supervisory potential may advance to 8540-110 FOREMAN, CABINET AND WOOD FURNITURE MAKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Those who acquire a knowledge of business practices may become self-employed.

TRANSFER POSSIBILITIES: Cabinet makers may transfer to occupations requiring similar skills in other chapters, for example, 8351-114 MODEL MAKER, WOOD, 8781-110 CARPENTER AND 8395-110 FURNITURE REPRODUCER.

OCCUPATIONAL TITLES:

8541-110 CABINET MAKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	2	5	4	M-47	I-57	4	7	190	Y041

8541-D CABINET AND WOOD FURNITURE MAKERS

484, 585, 684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with fabricating, assembling and repairing cabinets, doors and frames for doors and windows, and other wooden household, store and office furniture. Worker functions include: analyzing data from drawings and specifications to determine type of stock and dimensions or machining required; working precisely to lay out parts on wood stock and mark cutting lines for machining; setting up, operating and tending a variety of common and special woodworking machines; manipulating hand and power tools to fit, join and assemble parts; and comparing finished articles to ensure conformance to specifications. Work activities include: repairing surface defects on wooden articles; simulating antique finish on furniture; weaving chair seats from cane, rattan or reed; and fitting and installing latches, hinges, handles and other hardware.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply routine instructions and procedures for assembling and repairing wooden furniture and articles; spatial perception to visualize how furniture components fit together to form the complete product; form perception to observe surface defects and ensure joints are straight and clean; eye-hand co-ordination and manual dexterity to skilfully work with hand and power tools and woodworking machines, and to fit, join and assemble wooden articles by hand; finger dexterity to manipulate objects such as nails, thumbtacks, clamps and hardware; strength to perform light to medium work; near visual acuity to fit, trim and assemble wooden components; colour vision to match colour and grain of wood; adaptability to working in proximity to noise from woodworking machinery and hammering; adaptability to working in conditions subject to hazards from sharp tools, operating machinery and wood dust.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: six to nine years of general education; one month to one year or more of on-the-job training and related experience, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Workers in Cluster D may advance to occupations requiring higher skills within that cluster. Experienced workers in D may, with additional training, advance to Cabinetmakers and Lay-Out Men. Those with supervisory potential may advance to appropriate occupations in Unit Group 8540, FOREMEN: FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, WOOD PRODUCTS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: Workers may transfer to occcupations requiring similar skills within the chapter, or to appropriate occupations in Chapter 8549 FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, WOOD PRODUCTS, N.E.C., or in Minor Group 835 WOOD MACHINING OCCUPATIONS.

OCCUPATIONAL TITLES:

8541-118 ASSEMBLER, FRAME AND MIRROR
8541-126 REPAIRMAN, ASSEMBLED WOOD PRODUCTS
8541-130 ANTIQUER
8541-134 WEAVER, CHAIR SEAT
8541-138 GLUE-BONDING-MACHINE TENDER
8541-142 CASE FITTER
8541-146 EDGE BANDER
8541-150 FURNITURE ASSEMBLER
8541-154 ASSEMBLER, SASH & DOOR
8541-156 CABINET ASSEMBLER
8541-158 FURNITURE CANER
8541-162 LAMINATOR, HAND
8541-166 PATCHER, DOOR
8541-170 PICTURE-FRAME ASSEMBLER
8541-174 HYDRAULIC-PRESS TENDER
8541-178 LAMINATING-PRESS TENDER
8541-182 CHAIR LEVELER
8541-190 HARDWARE INSTALLER
8541-194 BANDING-MACHINE TENDER
8541-198 CLAMPING-MACHINE TENDER
8541-202 DOWELLING-MACHINE TENDER
8541-206 LAG-BOLT-MACHINE TENDER
8541-210 ASSEMBLER, WOODENWARE
8541-214 SANDER, HAND
8541-218 DOOR LAY-UP MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	4	4	4	3	5	5	L-M347	I57	3-2	4-2	193	2Y3
	3					5	3		4	4							

8548 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK: FABRICATING, ASSEMBLING AND REPAIRING, WOOD PRODUCTS 687, 887

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in the fabrication, assembly and repair of wooden products. The primary worker function is: handling parts, materials, hand tools and work aids to perform routine tasks. Work activities include: ensuring tightness of barrels; assembling wooden boxes, crates and collapsible hogsheads, using nails and metal strips; rubbing wood filler into furniture and furniture parts; hammering steel bands into ends of timber and railroad ties to prevent checking while seasoning and removing clamps from stacks of veneered products.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply simple instructions and procedures related to wood product fabricating, assembling and repairing operations; eye-hand-finger co-ordination to use a variety of hand tools to perform simple and repetitive tasks; manual dexterity to insert, attach, cut, bend, remove and pile parts, materials or products; ability to perform duties while in a stooped position; capacity to perform work involving continuous reaching, handling, pushing, pulling, lifting and carrying of materials and objects weighing up to fifty pounds.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: no specific educational level; on-the-job training ranging from a short demonstration for some occupations to thirty days for others.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs, and advancement is normally to higher skilled occupations in Minor Group 854 FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, WOOD PRODUCTS for workers who demonstrate ability, interest and initiative.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within this chapter. Transfer possibilities may also be to occupations in labouring and elemental work in other chapters such as 8598, OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK: PRODUCT FABRICATING, ASSEMBLING AND REPAIRING, N.E.C.

OCCUPATIONAL TITLES:

8548-110	COOPERAGE LABOURER	8548-126	CLAMP REMOVER
8548-114	LABOURER, BOX FACTOR	8548-130	HOGSHEAD ASSEMBLER
8548-118	WIPER	8548-134	BAND NAILER
8548-122	ANTICHECKING-IRON MAN	8548-138	BARREL-STAVE LEVELER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	4	5	L-H347	I	1	2-1	31	23
		5					3		4								

8551-A PATTERNMAKING, MARKING AND CUTTING OCCUPATIONS: TEXTILE, FUR AND LEATHER PRODUCTS

281, 381

WORK PERFORMED: This chapter includes occupations concerned with making patterns and laying out, marking and cutting textile, fur and leather material to make or prepare parts for assembly into garments, footwear, sails, upholstery and other products. Worker functions include: compiling data from sketches, sample articles and design specifications to determine number, shape and size of pattern parts, and type and quantity of material required; working with precision to draw sketches and full size or scaled patterns, and to mark positions of pleats, pockets or buttons and cutting, sewing, stitching and assembly lines on materials; and manipulating materials, shears and knives, or operating and tending machines to cut, trim, mark, punch or stamp textile, fur and leather parts or products. Work activities include: selecting patterns and materials to be used; forming materials over pattern or positioning materials in machine; and adjusting guides, cutting blades and other mechanisms on machines and equipment for specific operations.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the principles and techniques of patternmaking, or the procedures for using patterns to mark and cut materials; spatial perception to visualize the completed article when designing and making patterns; form perception to distinguish pertinent details on design specifications or sketches and to recognize variances in materials used; eye-hand-finger co-ordination for such precise activities as laying out and drawing patterns or cutting material along marked lines; finger and manual dexterity to manipulate draughting instruments or cutting tools rapidly and skilfully when making or cutting patterns; physical capacity to perform light to medium work which may involve handling, lifting or carrying rolls of materials or equipment weighing up to fifty pounds; near visual acuity to draw and cut out patterns precisely and to accurately read graduations on tape measures, rulers or gauges.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; one year of on-the-job training and from one to two years of related experience, preferably as a cutter

ADVANCEMENT POSSIBILITIES: Advancement for workers in this chapter may be to occupations requiring higher skills within their individual cluster. Experienced workers may also advance to appropriate occupations in Chapter 8566, INSPECTING GRADING AND SAMPLING OCCUPATIONS: FABRICATING, ASSEMBLING AND REPAIRING, TEXTILE, FUR AND LEATHER PRODUCTS. Those with supervisory potential may advance to 8550-130 FOREMAN, PATTERNMAKING, MARKING AND CUTTING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in Cluster A are limited.

OCCUPATIONAL TITLES:

8551-110 LAYOUT-AND-PATTERN MAN, SAIL
8551-114 DESIGN-AND-PATTERN MAN, CANVAS GOODS
8551-118 PATTERNMAKER
8551-122 PATTERNMAKER, SHOE
8551-126 PATTERN MODIFIER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	3	4	3	3	3	5	4	L-M47	I	4	7-6	910	0Y9
		4		3	2		4	4	4	4	5						

8551-B PATTERNMAKING, MARKING AND CUTTING OCCUPATIONS: TEXTILE, FUR AND LEATHER PRODUCTS

384, 484, 684

WORK PERFORMED: This chapter includes occupations concerned with making patterns and laying out, marking and cutting textile, fur and leather material to make or prepare parts for assembly into garments, footwear, sails, upholstery and other products. Worker functions include: compiling data from sketches, sample articles and design specifications to determine number, shape and size of pattern parts, and type and quantity of material required; working with precision to draw sketches and full size or scaled patterns, and to mark positions of pleats, pockets or buttons and cutting, sewing, stitching and assembly lines on materials; and manipulating materials, shears and knives, or operating and tending machines to cut, trim, mark, punch or stamp textile, fur and leather parts or products. Work activities include: selecting patterns and materials to be used; forming materials over pattern or positioning materials in machine; and adjusting guides, cutting blades and other mechanisms on machines and equipment for specific operations.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the principles and techniques of patternmaking, or the procedures for using patterns to mark and cut materials; spatial perception to visualize the completed article when designing and making patterns; form perception to distinguish pertinent details on design specifications or sketches and to recognize variances in materials used; eye-hand-finger co-ordination for such precise activities as laying out and drawing patterns or cutting material along marked lines; finger and manual dexterity to manipulate draughting instruments or cutting tools rapidly and skilfully when making or cutting patterns; physical capacity to perform light to medium work which may involve handling, lifting or carrying rolls of materials or equipment weighing up to fifty pounds; near visual acuity to draw and cut out patterns precisely and to accurately read graduations on tape measures, rulers or gauges.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one to six months of on-the-job training, and related experience depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Advancement for workers in this chapter may be to occupations requiring higher skills within their individual cluster or from Cluster B to A. Experienced workers may also advance to appropriate occupations in Chapter 8566, INSPECTING, GRADING AND SAMPLING OCCUPATIONS: FABRICATING, ASSEMBLING AND REPAIRING, TEXTILE, FUR AND LEATHER PRODUCTS. Those with supervisory potential may advance to 8550-130 FOREMAN, PATTERNMAKING, MARKING AND CUTTING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster.

OCCUPATIONAL TITLES:

8551-130	PATTERN CUTTER
8551-134	SLIPCOVER CUTTER
8551-138	CUTTER, SHOE PARTS
8551-142	PATTERN MARKER
8551-146	CUTTER, PORTABLE MACHINE
8551-154	MARKER-AND-CUTTER, UPHOLSTERY
8551-158	SAIL CUTTER
8551-162	CUTTER, HAND
8551-166	RE-CUTTER
8551-170	CUTTER, MALLET-AND-DIE
8551-174	LAY-OUT-TABLE GIRL
8551-178	PERFORATOR, PATTERN
8551-182	RUG CLIPPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	$\underline{3}$	$\underline{3}$	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	5	4	L-47	I	3-2	5-3	193	Y0
	3		3	$\underline{4}$	$\underline{4}$	5	$\underline{4}$	4			5						Y2

261, 381

8553-A TAILORS AND DRESSMAKERS

WORK PERFORMED: This chapter includes occupations concerned with making, altering and repairing complete items of tailored clothing, dresses and other made-to-measure garments, and performing complex operations in the manufacturing of ready-to-wear garments. Worker functions include: analyzing data concerning customers' measurements, requirements and preferences to draw an original or modify an existing pattern; compiling information to select material, style and design of garment; working with precision to measure, cut and sew material and fit and alter clothing; operating sewing machines or sewing by hand to join parts together; and comparing material, patterns and measurements to ensure conformance with specifications on instruction, alteration or repair tag. Work activities include: measuring customers and recording measurements; marking dimensions on material and cutting off excess material; placing pattern in position to effect maximum use of material and cutting along pattern line; and fitting garments on customer.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the principles and techniques of tailoring, dressmaking and patternmaking; numerical ability to draw pattern, modify existing pattern or alter garment according to customers' measurements; spatial perception to visualize fit and drape of assembled garment from measurements, sketches and patterns, and to design garments and draft patterns; form perception to discern pertinent detail in style designs, patterns and material, and to do fine, exacting work requiring constant attention to detail; eye-hand-finger co-ordination, finger dexterity and manual dexterity to take customers' measurements, draw patterns, cut out material, pin, assemble garment using needle and thread or sewing machine, iron garment, fit and alter garment; near visual acuity to perform detailed work; colour discrimination for 8553-174 COSTUMER, to select fabric hues or colours that compliment cast member and character he portrays, and to co-ordinate colours of costumes of entire cast.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; a two to four or more years program of apprenticeship; or two to four or more years of on-the-job training supplemented by courses at a vocational training school, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: With experience and some additional training, lesser skilled workers may advance to higher skilled occupations within this chapter, or to appropriate occupations in Chapter 8566, INSPECTING, GRADING AND SAMPLING OCCUPATIONS: FABRICATING, ASSEMBLING AND REPAIRING, TEXTILE, FUR AND LEATHER PRODUCTS. Experienced workers with supervisory potential may also advance to 8550-114 FOREMAN, DRESSMAKERS or 8550-142 FOREMAN, TAILORS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Well qualified workers who acquire knowledge of business practices may also become self-employed.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter are usually limited to occupations requiring similar skills within the chapter. Transfer may be possible to 5135-178 SALESPERSON, WEARING APPAREL.

OCCUPATIONAL TITLES.

8553-142	DRESSMAKER	8553-178	SAMPLE-GARMENT MAKER
8553-110	TAILOR, MADE-TO-MEASURE GARMENTS	8553-150	SEAMSTRESS, WOMEN'S GARMENT ALTERATIONS
8553-174	COSTUMER	8553-118	TAILOR, MEN'S GARMENT ALTERATIONS
8553-146	SEAMSTRESS		
8553-114	TAILOR, READY-TO-WEAR GARMENTS		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	2	3	4	4	L-47	I	4-3	8-6	190	90Y5 90Y

8553-B TAILORS AND DRESSMAKERS 364, 674, 684

WORK PERFORMED: This chapter includes occupations concerned with making, altering and repairing complete items of tailored clothing, dresses and other made-to-measure garments, and performing complex operations in the manufacturing of ready-to-wear garments. Worker functions include: analyzing data concerning customers' measurements, requirements and preferences to draw an original or modify an existing pattern; compiling information to select material, style and design of garment; working with precision to measure, cut and sew material and fit and alter clothing; operating sewing machines or sewing by hand to join parts together; and comparing material, patterns and measurements to ensure conformance with specifications on instruction, alteration or repair tag. Work activities include: measuring customers and recording measurements; marking dimensions on material and cutting off excess material; placing pattern in position to effect maximum use of material and cutting along pattern line; and fitting garments on customer.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the principles and techniques of tailoring, dressmaking and patternmaking; numerical ability to draw pattern, modify existing pattern or alter garment according to customers' measurements; spatial perception to visualize fit and drape of assembled garment from measurements, sketches and patterns, and to design garments and draft patterns; form perception to discern pertinent detail in style designs, patterns and material, and to do fine, exacting work requiring constant attention to detail; eye-hand-finger co-ordination, finger dexterity and manual dexterity to take customers' measurements, draw patterns, cut out material, pin, assemble garment using needle and thread or sewing machine, iron garment, fit and alter garment; near visual acuity to perform detailed work; colour discrimination for 8553-174 COSTUMER, to select fabric hues or colours that compliment cast member and character he portrays, and to co-ordinate colours of costumes of entire cast.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: from eight to ten years of general education; one to six months of on-the-job training and related experience in the garment industry.

ADVANCEMENT POSSIBILITIES: With experience and some additional training, lesser skilled workers may advance to higher skilled occupations within this chapter, or to appropriate occupations in Chapter 8566, INSPECTING, GRADING AND SAMPLING OCCUPATIONS: FABRICATING, ASSEMBLING AND REPAIRING, TEXTILE, FUR AND LEATHER PRODUCTS. Experienced workers with supervisory potential may also advance to 8550-114 FOREMAN, DRESSMAKERS or 8550-142 FOREMAN, TAILORS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Well qualified workers who acquire knowledge of business preactices may also become self-employed.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter are usually limited to occupations requiring similar skills within the chapter. Transfer may be possible to 5135-178 SALESPERSON, WEARING APPAREL.

OCCUPATIONAL TITLES:

8553-154 WOMEN'S GARMENT FITTER
8553-182 CORSETIERE
8553-122 MEN'S GARMENT FITTER
8553-186 WARDROBE MISTRESS
8553-190 GARMENT MARKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3 4	4	4	3 4	3	4	3	2 3	3	5 4	4 5	L-347	I	3-2	5-2	19	20Y

8555-A FURRIERS

261, 381, 684

WORK PERFORMED: This chapter includes occupations concerned with making, altering, restyling and repairing natural fur garments and accessories. Worker functions include: compiling and analyzing information from customer as to size, quality and preferred style in order to estimate costs and select appropriate furs and patterns; working to precise standards when matching, cutting and joining furs; manipulating and handling fur pieces during selection, sewing and blocking operations; and comparing finished garments to specifications in order to detect flaws. Work activities include: arranging pelts on pattern; trimming parts of garment to conform to pattern; blocking pelts into desired shape; and cutting out and sewing linings and padding.

APTITUDES AND CAPACITIES: Workers in this chapter require: spatial perception to visualize fit and drape of assembled garment from measurements, sketches and patterns, to cut pelts according to pattern, and to arrange pelts on pattern to achieve best appearance and symmetry; form perception to examine fur pelts for texture and quality, to notice minor items relative to style, designs and patterns, to do fine exacting work requiring constant attention to detail, and to inspect finished garment for flaws; eye-hand-finger co-ordination, finger dexterity and manual dexterity to cut furs using fur-cutting knife, to join furs together by hand or using sewing machine, and to iron linings; colour discrimination to grade, sort and match fur pelts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: from ten to twelve years of general education; six months to four years of on-the-job training under the guidance of an experienced worker, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Advancement for workers in this chapter is normally to higher skilled occupations within the chapter. Experienced workers who develop a good sense of fashions may advance to 3313-130 FUR DESIGNER, or become self-employed. Workers with supervisory potential may advance to 8550-118 FOREMAN, FURRIERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, there are few possibilities for transfer for the higher skilled workers in this chapter, however, workers in the lesser skilled occupations may transfer to 6163-114 FUR CLEANER, 6169-130 FUR-STORAGE MAN, or 8566-146 FUR SORTER, HAT.

OCCUPATIONAL TITLES:

8555-110	FURRIER, ALL ROUND
8555-114	FUR CUTTER
8555-122	FUR FINISHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	2	2	4	3	3	3	4	3	S-L47	I	4-3	7-5	190	Y091
		3	3	3	3					5	4					19	Y09

8555-C FURRIERS

WORK PERFORMED: This chapter includes occupations concerned with making, altering, restyling and restyling and repairing natural fur garments and accessories. Worker functions include: compiling and analyzing information from customer as to size, quality and preferred style in order to estimate costs and select appropriate furs and patterns; working to precise standards when matching, cutting and joining furs; manipulating and handling fur pieces during selection, sewing and blocking operations; and comparing finished garments to specifications in order to detect flaws. Work activities include: arranging pelts on pattern; trimming parts of garment to conform to pattern; blocking pelts into desired shape; and cutting out and sewing linings and padding.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to apply the techinques of fur blocking; spatial perception to shape pelts according to pattern outline; eye-hand-finger co-ordination and manual dexterity to handle fur pelts and blocking equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight years of general education; three to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for workers in this chapter is normally to higher skilled occupations within the chapter. Experienced workers who develop a good sense of fashions may advance to 3313-130 FUR DESIGNER, or become self-employed. Workers with supervisory potential may advance to 8550-118 FOREMAN, FURRIERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, there are few possibilities for transfer for the higher skilled workers in this chapter, however, workers in the lesser skilled occupations may transfer to 6163-114 FUR CLEANER, 6169-130 FUR-STORAGE MAN, or 8566-146 FUR SORTER, HAT.

OCCUPATIONAL TITLES:

8555-126 FUR BLOCKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	4	5	4	L-4	I	2	4	13	23Y

8557-A MILLINERS, HAT AND CAP MAKERS

WORK PERFORMED: This chapter includes occupations concerned with fashioning and making hats, caps and related accessories. Worker functions include: analyzing data from original or existing designs, or from customers' specifications to determine the size and style of hat to be fashioned; working with precision to lay out, mark and cut patterns and material; tending machines to cut, stretch, press, form, abrade and buff hat parts and finished items; and manipulating and handling materials, trimmings, scissors, rulers and special irons to block, curl, shrink, assemble and decorate hats by hand. Work activities include: designing hats according to current styles and customers' specifications; laying out, cutting, piecing, sewing, forming and pressing textile, fur and leather materials into desired styles, shapes and sizes; and sorting and distributing hat parts and hats according to size, colour and style to facilitate assembly operations.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to acquire a thorough knowledge of millinery techniques and reasoning ability to plan and create original and fashionable hat designs; spatial perception to visualize shape, arrangement and relationship of materials, trimmings and ornaments when designing womens' hats; form perception to make accurate visual comparison of completed hat against existing or original design or specification; eye-hand-finger co-ordination for such precise activities as marking out and cutting patterns or materials to desired size and shape; finger dexterity to skilfully and nimbly perform a variety of hand sewing operations; manual dexterity to move the hands easily and skilfully when blocking or pressing hats into desired shape; colour discrimination to recognize differences or similarities in colours or shades of the same colour, when selecting contrasting or complementary coloured material; physical capacity to reach for and handle a variety of lightweight articles, and to finger and feel material for smoothness and completeness of finish; near visual acuity to perform detailed and fine hand work such as marking, cutting, fitting, fastening and sewing; colour vision to sort millinery parts and trimmings, hats or ear-muffs according to specifications.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; a two year program of vocational courses in fashion and designing, and one or more years of related experience in other phases of hat making.

ADVANCEMENT POSSIBILITIES: Experienced Milliners who develop a good fashion-sense may increase their earnings by creating new hat designs or by working for an exclusive fashion house. Those who acquire knowledge of business practices may become self-employed.

TRANSFER POSSIBILITIES: Transfer for Milliners is normally limited, but may be to self-employment as owner of their own establishment.

OCCUPATIONAL TITLE:

8557-110 MILLINER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	2	3	4	2	L-47	I	4	7	9801	9Y14

8557-B MILLINERS, HAT AND CAP MAKERS

684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with fashioning and making hats, caps and related accessories. Worker functions include: analyzing data from original or existing designs, or from customers' specifications to determine the size and style of hat to be fashioned; working with precision to lay out, mark and cut patterns and material; tending machines to cut, stretch, press, form, abrade and buff hat parts and finished items; and manipulating and handling materials, trimmings, scissors, rulers and special irons to block, curl, shrink, assemble and decorate hats by hand. Work activities include: designing hats according to current styles and customers' specifications; laying out, cutting piecing, sewing, forming and pressing textile, fur and leather materials into desired styles, shapes and sizes; and sorting and distributing hat parts and hats according to size, colour and style to facilitate assembly operations.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow routine instructions and procedures related to various hand and machine operations in hat fabrication; form perception to visually detect loose fibres, wrinkles or other material imperfections; eye-hand co-ordination and finger dexterity to nimbly and accurately lace, tie, thread or perform hand and machine sewing operations; manual dexterity to work with the hands easily and skilfully when selecting, fitting, placing or positioning hat or hat parts, or when adjusting equipment; physical capacity to reach for and handle a variety of lightweight articles, and to finger and feel material for smoothness and completeness of finish; near visual acuity to perform detailed and fine hand work such as marking, cutting, fitting, fastening and sewing; colour vision to sort millinery parts and trimmings, hats or ear-muffs according to specifications.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Some experienced workers in this cluster who acquire additional training, may advance to 8557-110 MILLINER. Those with supervisory potential may advance to 8550-122 FOREMAN, HAT AND CAP MAKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in Cluster B may transfer to other occupations requiring similar skills within the cluster.

OCCUPATIONAL TITLES:

8557-114 HAT MAKER, FACTORY
8557-118 HAT FINISHER, FELT
8557-122 HAT BLOCKER, HAND
8557-126 HAT-BRIM CURLER
8557-130 HAT-CONE SHRINKER
8557-134 HAT-DECORATION MAKER
8557-138 HAT DECORATOR
8557-142 HAT-FOUNDATION MAKER
8557-146 HAT BLOCKER, MACHINE
8557-150 HAT-BRIM CUTTER
8557-154 HAT-BRIM-FLEXING-MACHINE TENDER
8557-158 HAT-CONE FORMER
8557-162 HAT-CROWN-AND-BRIM FORMER
8557-166 HAT-GREASING-MACHINE TENDER
8557-170 HAT-POUNCING-MACHINE TENDER
8557-174 HAT PRESSER, MACHINE
8557-178 HAT SORTER
8557-182 SERVICE GIRL, HAT FACTORY
8557-186 EAR-MUFF ASSEMBLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	$\underline{3}$	5	$\underline{3}$	4	$\underline{3}$	4	5	L-47	I-4	3-2	5-2	139	230Y
			5	3	$\underline{4}$	4		$\underline{3}$		5	3						

8561-A SHOEMAKING AND REPAIRING OCCUPATIONS 381, 661, 681

WORK PERFORMED: This chapter includes occupations concerned with making and repairing leather, and leather-soled, fabric-topped footwear, by hand and machine. Worker functions include: manipulating shoe parts, hand tools and machine controls to shape and fabricate footwear; tending splitting machines, pressing machines or similar equipment to cut, shape, join or finish shoe parts; comparing quality and appearance of completed shoe or shoe parts to acceptable standards; and working to close tolerances when making custom shoes or repairs. Work activities include: forming materials over lasts into desired styles, shapes and sizes, cutting, trimming, sewing, nailing, tacking and assembling shoe parts; adjusting guides, cutting blades, stitchers and other mechanisms on machines and equipment; moving levers or depressing pedals to start and stop machines; and dyeing, tinting or staining shoes.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply custom shoe making and shoe repairing techniques and to exercise considerable judgment in selecting the appropriate patterns, tools and materials; spatial perception to visualize size and shape of completed shoe when working from style drawings, prescriptions or other specifications; eye-hand co-ordination and finger dexterity to rapidly and accurately sew materials by hand or machine; form perception to make accurate visual comparisons of shoe or shoe parts to detect wrinkles, rough finishes or other imperfections; manual dexterity to work skilfully with knives, lasting tools, buffers, grinders, hammers or stretchers; physical capacity to reach for and handle a variety of light weight tools and materials; near visual acuity and depth perception to accurately stitch, cut, trim and assemble shoe parts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten years of general education; a one-year program at a vocational school and up to two years of on-the-job training; or from two to four years of progressive experience and on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers who acquire sufficient knowledge of business practices may successfully operate their own business. Experienced workers with supervisory potential may advance to 8550-138 FOREMAN, SHOE MAKING AND REPAIRING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Transfer to other occupations is unlikely for workers in this cluster.

OCCUPATIONAL TITLES:

8561-110 SHOEMAKER, CUSTOM
8561-114 SHOE REPAIRMAN
8561-118 SHOE REPAIRER, FACTORY

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4 5	$\underline{3}$ 4	$\underline{3}$	4 5	$\underline{3}$ 4	$\underline{3}$	$\underline{3}$	5 4	3 4	L-47	I	3	7-6	901	Y01

587, 682, 684, 685, 686, 687

8561-B SHOEMAKING AND REPAIRING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with making and repairing leather, and leather-soled, fabric-topped footwear, by hand and machine. Worker functions include: manipulating shoe parts, hand tools and machine controls to shape and fabricate footwear; tending splitting machines, pressing machines or similar equipment to cut, shape, join or finish shoe parts; comparing quality and appearance of completed shoe or shoe parts to acceptable standards; and working to close tolerances when making custom shoes or repairs. Work activities include: forming materials over lasts into desired styles, shapes and sizes, cutting, trimming, sewing, nailing, tacking and assembling shoe parts; adjusting guides, cutting blades, stitchers and other mechanisms on machines and equipment; moving levers or depressing pedals to start and stop machine; and dyeing, tinting or staining shoes.

APTITUDES AND CAPACITIES: learning ability to understand routine oral and written instructions and to apply them to perform a variety of hand and machine shoe making operations; eye-hand-finger co-ordination to accurately and precisely position and align parts in machines; eye-hand-foot co-ordination to position and hold parts in machines and to activate machine by depressing foot pedal; adaptability to working with, or in close proximity to machines that create considerable noise; form perception to make accurate visual comparisons of shoe or shoe parts to detect wrinkles, rough finishes or other imperfections; manual dexterity to work skilfully with knives, lasting tools, buffers, grinders, hammers or stretchers; physical capacity to reach for and handle a variety of light weight tools and materials; near visual acuity and depth perception to accurately stitch, cut, trim and assemble shoe parts.

TRAINING AND ENTRY REQUIREMENTS: 8 years general education; 1 to 4 months on-the-job training.

ADVANCEMENT POSSSIBILITIES: Workers may advance to more skilled occupations within the cluster. Some who acquire experience and training in the various stages of shoe making may advance to occupations in Cluster A.

TRANSFER POSSIBILITIES: Workers may transfer to occupations requiring similar skills within the cluster and elsewhere in Minor Group 855/856 FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS: TEXTILE, FUR AND LEATHER PRODUCTS.

OCCUPATIONAL TITLES:

8561-122 HEEL-SEAT FITTER
8561-126 STITCHING-MACHINE OPERATOR
8561-130 HAND STITCHER, SHOES
8561-134 COUNTER AND UPPER TACKER
8561-138 HEEL BREASTER
8561-142 LASTER
8561-146 NOVELTY-SHOE LACER
8561-150 SHOE-DECORATION ASSEMBLER
8561-154 SHOE DYER
8561-158 SHOE-REPAIRMAN HELPER
8561-162 STEEL-TOE PLACER
8561-166 WOOD-HEEL FINISHER
8561-170 BURNISHER
8561-174 CHANNELER
8561-178 FASTENER, SHOE PARTS
8561-182 HEEL ATTACHER
8561-186 HEEL BUILDER
8561-190 SOLE MOULDER
8561-194 TRIMMER, SHOE PARTS
8561-198 STOCK SORTER, SHOE PARTS
8561-202 BOTTOM FILLER
8561-206 BOTTOM WHEELER
8561-210 INKER, HAND
8561-214 LAST IRONER
8561-218 NAIL CUTTER
8561-222 RELASTER
8561-226 THREAD LASTER
8561-230 WRINKLE REMOVER
8561-234 BEVELER
8561-238 BUFFER, SHOE PARTS
8561-242 CEMENTER, HAND
8561-246 CHANNEL CLOSER
8561-250 CUT-OUT-AND-MARKING-MACHINE TENDER
8561-254 FEATHEREDGER AND REDUCER
8561-258 FOLDER, SHOE PARTS
8561-262 FORMER, SHOE PARTS
8561-266 GROOVER AND TURNER
8561-270 HEEL COMPRESSOR
8561-274 HEEL SCORER
8561-278 HEEL SHAPER
8561-282 INKER, MACHINE
8561-286 PERFORATING-MACHINE TENDER
8561-290 SHOE LACER, MACHINE
8561-294 SMOOTHING-MACHINE TENDER
8561-298 SPLITTING-MACHINE TENDER
8561-302 STITCH SEPARATOR AND SIMULATOR
8561-306 TACK-PULLER
8561-310 TAPER, SHOE PARTS
8561-314 TOE AND HEEL SPRAYER
8561-318 VAMP CREASER
8561-322 WELT-BUTTER AND TACKER
8561-326 CEMENT APPLICATOR
8561-330 SHANKER
8561-334 TRIMMER, HAND

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	4	4	4	4	4	5	4	4	3	4	5
			5		3		3		4	5	

PA	EC	GED	SVP	INTS.	TEMPS.
L47	I5	3-2	4-2	319	2Y3 23

8562-A UPHOLSTERERS

361, 481, 684

WORK PERFORMED: This chapter includes occupations concerned with fabricating, rebuilding and repairing upholstered products such as chairs, sofas, aircraft and automobile interiors and mattresses, on a custom or mass-production basis. Worker functions include: manipulating materials, pattern, hand tools and stapling guns used in upholstering; working to close tolerances when laying out, cutting and sewing material or doing upholstered sections; compiling data on style, fabric and colour from drawings or customer specification; computing amounts of material required from dimensions on drawings; and comparing quality an appearance of completed products to ensure acceptable standards are met. Work activities include: preparing patterns or templates for use in furniture or vehicle upholstery work; examining upholstery materials for damage or defects; installing padding, webbing and springs in furniture or automotive and aircraft seat frames; cutting, fitting and installing seat covers; and lining casket interiors.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply upholstery techniques and procedures, and to select appropriate tools, objects and materials; spatial perception to visualize sizes, shapes, arrangement and relationship of materials and parts making up the upholstered product; form perception to distinguish details in materials and objects when marking, cutting and assembling upholstery material and parts, and to make visual inspections of finished work; eye-hand-finger co-ordination to rapidly place and fasten upholstery materials, and to use hand and power tools; finger dexterity to move the fingers and manipulate small objects rapidly and accurately to adjust and secure upholstery materials; manual dexterity to work with the hands easily and skilfully when selecting, cutting, fitting, placing and securing upholstery materials; colour discrimination to observe similarities or differences in colours and recognize harmonious or contrasting colour combinations, and to match colours accurately; sufficient strength to perform light to medium work requiring lifting of upholstered parts or furniture weighing up to fifty pounds, and to tighten special clamps; agility to work in awkward positions such as stooping, kneeling and crouching while upholstering; ability to finger and feel materials and to reach for hardware while assembling products; visual acuity for marking, cutting, fitting and fastening materials, and to obtain impressions for shapes, sizes and colours.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten years of general education; a two to four-year apprenticeship program or similar form of on-the-job training; or up to one year of vocational training at an institute of technology or trade school and one to two years of on-the-job training; completion of certification requirements for 8562-114 VEHICLE-UPHOLSTERY REPAIRMAN in some provinces.

ADVANCEMENT POSSIBILITIES: Workers who have supervisory potential may advance to 8550-146 FOREMAN, UPHOLSTERERS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile. Others may advance to occupations in quality control work, such as 8566-134 CUSHION-AND-COVER INSPECTOR. Upholsters who acquire knowledge of business practices may advance to estimators or may become self-employed as owners of their own establishments.

TRANSFER POSSIBILITIES: With limited additional training, workers may transfer to occupations requiring similar skills within the cluster. Transfer may also be to appropriate occupations requiring similar basic skills in Chapter 8551, PATTERNMAKING, MARKING AND CUTTING OCCUPATIONS: TEXTILE, FUR AND LEATHER PRODUCTS.

OCCUPATIONAL TITLES:

8562-110	UPHOLSTERER, ALL ROUND	8562-114	VEHICLE-UPHOLSTERY REPAIRMAN
8562-112	PATTERNMAKER-AND-UPHOLSTERER, AIRCRAFT	8562-118	UPHOLSTERER, AIRCRAFT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	2	3	4	3	3	3	4	3	L-M347	I	4-3	7-5	901	Y0
		3	3	3		5					4						

8562-B UPHOLSTERERS

684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with fabricating, rebuilding and repairing upholstered products such as chairs, sofas, aircraft and automobile interiors and mattresses, on a custom or mass-production basis. Worker functions include: manipulating materials, patterns, and tools and stapling guns used in upholstering; working to close tolerances when laying out, cutting and sewing material or joining upholstered sections; compiling data on style, fabric and colour from drawings or customer specifications; computing amounts of material required from dimensions on drawings; and comparing quality and appearance of completed products to ensure acceptable standards are met. Work activities included preparing patterns or templates for use in furniture or vehicle upholstery work; examining upholstered materials for damage or defects; installing padding, webbing and springs in furniture or automotive and aircraft seat frames; cutting, fitting and installing seat covers; and lining casket interiors.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply upholstery techniques and procedures, and to select appropriate tools, objects and materials; spatial perception to visualize sizes, shapes, arrangement and relationship of materials and parts making up the upholstered product; form perception to distinguish details in materials and objects when marking, cutting and assembling upholstery material and parts, and to make visual inspections of finished work; eye-hand-finger co-ordination to rapidly place and fasten upholstery materials, and to use hand and power tools; finger dexterity to move the fingers and manipulate small objects rapidly and accurately to adjust and secure upholstery materials; manual dexterity to work with the hands easily and skilfully when selecting, cutting, fitting, placing and securing upholstery materials; colour discrimination to observe similarities or differences in colours and recognize harmonious or contrasting colour combinations, and to match colours accurately; sufficient strength to perform light to medium work requiring lifting of upholstered parts or furniture weighing up to fifty pounds, and to tighten special clamps; agility to work in awkward positions such as stooping, kneeling and crouching while upholstering; ability to finger and feel materials and to reach for hardware while assembling products; visual acuity for marking, cutting, fitting and fastening materials, and to obtain impresssions for shapes, sizes and colours.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training and experience, workers in Cluster B may advance to occupations requiring higher skills within that cluster, or in Cluster A. Workers in both clusters who have supervisory potential may advance to 8550-146 FOREMAN, UPHOLSTERERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Others may advance to occupations in quality control work, such as 8566-134 CUSHION-AND-COVER INSPECTOR. Upholsterers who acquire knowledge of business practices may advance to estimators or may become self-employed as owners of their own establishments.

TRANSFER POSSIBILITIES: With limited additional training, workers may transfer to occupations requiring similar skills within their respective cluster. Transfer may also be to appropriate occupations requiring similar basic skills in Chapter 8551, PATTERN-MAKING, MARKING AND CUTTING OCCUPATIONS: TEXTILE, FUR AND LEATHER PRODUCTS.

OCCUPATIONAL TITLES:

8562-120	CUTTER-AND-INSTALLER, SEAT COVER
8562-122	UPHOLSTERY REPAIRMAN
8562-126	SPRINGER
8562-130	CASKET COVERER
8562-134	CASKET LINER
8562-138	CHAIR UPHOLSTERER
8562-142	MATTRESS MAKER
8562-146	PANEL COVERER
8562-150	WIRE-BORDER ASSEMBLER
8562-154	ASSEMBLER, CAR SEATS
8562 158	BACK PADDER
8562-162	BOX-SPRING MAKER
8562-170	SPRING ASSEMBLER
8562-174	FILLING-MACHINE TENDER
8562-178	PAD ASSEMBLER, HEAT SEAL PRESS
8562-182	UPHOLSTERY TRIMMER
8562-186	UPHOLSTERER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	3	3	3	5	5	L-M34	I	3-2	4-2	319	23Y
			4		3			4	4	4	3						
											4						

8563 - SEWING MACHINE OPERATORS, TEXTILE AND SIMILAR MATERIALS 684, 685

WORK PERFORMED: This chapter includes occupations concerned with the machine-sewing of textiles, leather, fur, synthetic and similar materials to produce, decorate or repair items such as garments, draperies, bedding, carpets and felt goods Worker functions include: operating or tending single-or multiple-needle sewing machines to join, hem, embroider, mend, decorate or tuft material or products; and comparing sewn articles to specified standards to ensure proper stitching. Work activities include: selecting thread according to specifications or colour of fabric; placing spool on spindle and drawing thread through machine guides, tensions and needle eyes; starting, stopping and controlling speed of machine by actuating pedal, button or knee lever; guiding parts under needle, following edges, seams or markings; and patrolling work area to detect machine malfunctions when tending one or more automatic sewing machines.

APTITUDES AND CAPACITIES: Sewing Machine Operators require: learning ability to understand and apply machine-sewing techniques and to follow instructions; spatial perception to position article or material in machine and to thread, operate and adjust equipment; form perception to examine finished products for defects; eye-hand-finger co-ordination, finger dexterity and manual dexterity to thread, adjust and operate sewing machines, mending guns and fringing machines, and to cut material or thread using blade or scissors; near visual acuity to perform activities such as threading needles, aligning pointers on cloth frame with marks on machine chassis and observing needle and shuttle action, thread tension and alignment of stitches; adaptability to continual noise from own and adjacent sewing machines.

TRAINING AND ENTRY REQUIREMENTS: Sewing-Machine Operators normally require: up to eight years of general education; up to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this chapter who acquire experience in the various phases of sewing during production of an article or garment may advance to appropriate occupations in Volume I, Unit Group 8550, FOREMEN: FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, TEXTILE, FUR AND LEATHER PRODUCTS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles. Advancement may also be to occupations in other chapters, for example 8553-178 SAMPLE-GARMENT MAKER and 8569-146 SEAMSTRESS, LINEN ROOM.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to appropriate occupations requiring similar skills in other chapters, for example, 8566-130 INSPECTOR, GARMENT and 8569-167 CANVAS-COVER REPAIRMAN.

OCCUPATIONAL TITLES:

8563-110	MENDER, TEXTILE PRODUCTS
8563-114	SEWING-MACHINE OPERATOR
8563-118	EMBROIDERY-MACHINE TENDER
8563-122	RUG SEWER
8563-126	SEWING-MACHINE TENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4 5	3 4	3 4	5	4 3	3	3	4 5	4	L--M47	I5	3-2	4-2	319	2Y3

8566-A INSPECTING, GRADING AND SAMPLING OCCUPATIONS: FABRICATING, ASSEMBLING AND REPAIRING, TEXTILE, FUR AND LEATHER PRODUCTS

387, 687

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the fabrication, assembly and repair of textile, fur and leather products. Worker functions include: comparing textile, fur and leather products with samples or standards to ensure conformance to specifications; manipulating tools such as scissors, knives and clippers to cut defective parts or trim excess material from products; handling a variety of products during inspection, sorting and grading activities; and recording data on inspection tags and production records. Work activities include: matching, measuring and feeling textile, fur or leather products to detect flaws or irregularities, or to estimate quality and value according to predetermined standards; removing and marking defective items; and stacking products.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply quality-control procedures and reasoning ability to assess fur pelts and leather hides for conformance to specifications; form perception to perceive slight differences in shade, size, pattern and density of fur when sorting fur skins, and to observe defects in leather hides such as scars and holes; eye-hand-finger coordination to manipulate, feel and examine furs and hides; colour discrimination to a high degree for detecting colour variances in different fur depths or during grading of hides and pelts; physical capacity for 8566-114 LEATHER GRADER to lift up to fifty pounds when stacking leather hides; near visual acuity to compare pelts with samples of each grade and to examine leather for defects such as scars and holes.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; six months to two years of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: Advancement for Fur Sorters may be to 8555-114 FUR CUTTER, and experienced workers with supervisory potential may advance to 8550-126 FOREMAN, INSPECTING, GRADING AND SAMPLING OCCUPATIONS: TEXTILE, FUR AND LEATHER PRODUCTS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of the specialized nature of the work, there are virtually no transfer possibilities for workers in this cluster.

OCCUPATIONAL TITLES:

8566-110 FUR SORTER
8566-114 LEATHER GRADER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	2	4	3	3	4	5	2	L-M47	I	3	6-5	19	90Y
					3		4										

8566-B INSPECTING, GRADING AND SAMPLING OCCUPATIONS: FABRICATING, ASSEMBLING AND REPAIRING, TEXTILE, FUR AND LEATHER PRODUCTS

584, 587, 684, 687

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the fabrication, assembly and repair of textile, fur and leather products. Worker functions include: comparing textile, fur and leather products with samples or standards to ensure conformance to specifications; manipulating tools such as scissors, knives and clippers to cut defective parts or trim excess material from products; handling a variety of products during inspection, sorting and grading activities; and recording data on inspection tags and production records. Work activities include: matching, measuring and feeling textile, fur or leather products to detect flaws or irregularities, or to estimate quality and value according to predetermined standards; removing and marking defective items; and stacking products.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply quality-control techniques and to follow specifications; form perception to discern minute imperfections in leather and fabric products; eye-hand-finger co-ordinatin to trim excess material from products and press or smooth finished garments; finger dexterity to attach inspection tags, price tickets or labels to garments and to place inserts such as coins, combs and tissue paper into leather articles; manual dexterity to pick up, spread out and handle parts or finished products; colour discrimination to examine products for adherence to colour standards; near visual acuity to observe spots and stains on articles, to detect minute flaws such as defective material and stitching, crooked hems and tears, and to measure products for conformity to size.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: seven to nine years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement possibilities for workers in this cluster are limited, however, some experienced workers may advance to appropriate occupations in Chpater 8276, INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS, TEXTILE PROCESSING.

TRANSFER POSSIBILITIES: Inspectors and graders of textile products in this cluster may transfer to occupations requiring similar skills in other chapters, for example, 8276-130 FABRIC INSPECTOR.

OCCUPATIONAL TITLES:

8566-118	INSPECTOR, LEATHER GOODS
8566-122	SHOE INSPECTOR
8566-126	DRAPER
8566-130	INSPECTOR, GARMENT
8566-134	CUSHION-AND-COVER INSPECTOR
8566-138	INSPECTOR-GRADER, SECONDS
8566-142	EXAMINER, GLOVES AND MITTENS
8566-146	FUR SORTER, HAT
8566-150	INSPECTOR, HAT
8566-154	INSPECTOR, MATTRESS
8566-158	INSPECTOR, PARACHUTES
8566-162	SAMPLE CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	3	3	3	5	3	L-47	I	2	4-2	319	02Y
					3		4	4	4		4						

8568 - OCCUPATIONS IN LABOURING & OTHER ELEMENTAL WORK: FABRICATING, ASSEMBLING AND REPAIRING, TEXTILE, FUR AND LEATHER PRODUCTS

686, 687

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in the fabrication, assembly and repair of textile, fur and leather products. Worker functions include: feeding materials or parts into specialized processing machines or equipment; and offbearing finished products; and handling scissors, tools, brushes and other items while performing routine tasks. Work activities include: cutting materials into specified lengths; trimming, treating, coating, staining or cleaning parts or products to impart finish; and folding, sorting or pairing products prior to packaging.

APTITUDES AND CAPACITIES: learning ability to understand and follow simple instruction; eye-hand-finger co-ordination and manual dexterity to reach for and handle tools, equipment and products;

TRAINING AND ENTRY REQUIREMENTS: no specified educational level; on-the-job training ranging from a short demonstration up to one month.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs and advancement is normally to more highly skilled occupations in Minor Group 855/856 FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS: TEXTILE, FUR AND LEATHER PRODUCTS for workers who demonstrate ability, interest and initiative.

TRANSFER POSSIBILITIES: Transfer may be to other occupations within this chapter or to labouring and elemental occupations requiring similar skills in other chapters, such as 8578 OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK: FABRICATING, ASSEMBLING AND REPAIRING RUBBER, PLASTIC AND RELATED PRODUCTS.

OCCUPATIONAL TITLES:

8568-110 CONE DRYER, HAT
8568-114 GLOVE-TURNER-AND-FORMER AUTOMATIC
8568-118 HAT TREATER
8568-122 LABEL-HEAT TACKER
8568-123 PERFORATING-MACHINE TENDER
8568-124 PINKING-MACHINE TENDER
8568-126 PRESSING-MACHINE TENDER
8568-127 SOLE FLEXER
8568-130 ANTI-SQUEAK FILLER
8568-134 BAG LINER
8568-138 BUCKLE SHAPER
8568-142 BUFFING-DISK ASSEMBLER, CLOTH
8568-146 LABOURER, DRAPERY
8568-150 EDGE STAINER, BELT
8568-154 EMBROIDERY-FRAME MOUNTER
8568-158 FINAL ASSEMBLER, GARMENT
8568-162 GARMENT FOLDER
8568-166 GLOVE LINER
8568-170 GLOVE PAIRER
8568-174 HAT BRUSHER
8568-178 HAT-LINING CEMENTER
8568-182 LABOURER, BOOT AND SHOE
8568-186 LABOURER, COATING AND EMBOSSING
8568-187 LABOURER, FURRIER SHOP
8568-190 LACER
8568-194 LAY-UP MAN
8568-198 LENGTH CUTTER, HAND
8568-202 LINK CUTTER
8568-206 SHOE CLEANER
8568-210 SHOE-PARTS DIPPER
8568-214 SPIKE INSTALLER, GOLF-SHOE
8568-218 SPORTS-EQUIPMENT FILLER
8568-219 STEAM-CABINET ATTENDANT
8568-222 STUFFER
8568-226 THREAD TRIMMER, MACHINE
8568-230 TRIMMER, HAND
8568-234 TURNER
8568-238 HAT-SWEATBAND FLANGER
8568-242 LABOURER, PADDING
8568-246 BALE OPENER
8568-250 DRAW-STRING INSERTER
8568-254 GARMENT RIPPER
8568-258 HANDLE MOUNTER
8568-262 LINING INSERTER, SKATES
8568-266 PADDING CUTTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	5	5	4	4	5	4	4	4	5	5	L4	I	1	2-1	31	23
		4	4	5					3	4							

8571 - BONDING AND CEMENTING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS

485, 664, 684, 685, 686, 687

WORK PERFORMED: This chapter includes occupations concerned with bonding and cementing rubber or plastic materials to produce a variety of parts or products such as re-capped tires, plastic toys, rubber belts and footwear. Worker functions include: manipulating materials, tools and work aids to build or assemble products; tending machines that cement, bond, fit or splice parts or materials; and comparing finish, weight or dimensions of completed articles to established standards. Work activities include: installing machine parts and attachments; adjusting machine controls and guides to regulate temperature and pressure of rollers, flow of rubber cement and other variables; feeding rubber or plastic materials into machines; building up plies of rubber and fabric by hand to produce belts; and examining completed products for defects.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the techniques and procedures of bonding and cementing rubber or plastic materials by hand or special machines; form perception to visually examine products for physical defects such as bubbles, lumps, loose edges or misaligned parts; eye-hand co-ordination and finger dexterity to set and adjust controls, position and align parts and assemble rubber footwear, door panels or plastic toys; manual dexterity to work skillfully with knives, shears, hand rollers, brushes or other tools; physical capacity to perform light to heavy work, to reach for and handle a variety of objects, and to use the hands and fingers to smooth materials or make firm bonds; adaptability to unpleasant odours from rubber and adhesives.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: six to nine years of general education; one to six months of on-the-job training. for 8571-110 BELT BUILDER, six months related experience normally as 8571-158 BELT-BUILDER HELPER.

ADVANCEMENT POSSIBILITIES: Advancement possibilities within the chapter are limited, however, experienced workers with supervisory potential may advance to appropriate occupations in Unit Group 8570, FOREMEN: FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Some workers such as 8571-114 TIRE REPAIRER-VULCANIZER, and 8571-118 TIRE RETREADER who acquire knowledge of business practices may become self-employed.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within this chapter. With limited additional training, transfer possibilities may also be to appropriate occupations throughout Minor Group 857, FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS.

OCCUPATIONAL TITLES:

8571-110	BELT BUILDER
8571-114	TIRE REPAIRER-VULCANIZER
8571-118	TIRE RETREADER
8571-122	TIRE-RETREADING-MACHINE TENDER
8571-126	ROLL BUILDER
8571-130	RUBBER-FOOTWEAR ASSEMBLER
8571-134	SNOWTRACK BUILDER, RUBBER
8571-138	V-BELT BUILDER
8571-142	BRAIDING-MACHINE TENDER
8571-146	STRAP-FOLDING-MACHINE TENDER
8571-150	AUTOMOTIVE-DOOR-PANELLING ASSEMBLER
8571-154	BAND BUILDER
8571-158	BELT-BUILDER HELPER
8571-162	CONVEYOR-BELT SPLICER
8571-166	RUBBER-&-CANVAS-FOOTWEAR DIPPER
8571-170	SPLICER
8571-174	SPONGE-GASKET ASSEMBLER
8571-178	TUBE SKIVER AND SPLICER
8571-182	WADING-BOOT-TOP ASSEMBLER
8571-186	BAND-STOCK PREPARER
8571-190	CEMENTER, MACHINE
8571-194	GREEN-TIRE LUBRICATOR
8571-198	HEAT-SEALING-MACHINE TENDER
8571-202	PRESS TENDER
8571-206	RUBBER-TUBING SPLICER
8571-210	SPLICING-MACHINE TENDER
8571-214	TUBE SPLICER, MACHINE
8571-218	HAND BONDER, RUBBER FOOTWEAR
8571-222	PLASTIC-TOY ASSEMBLER
8571-226	RUBBER-CLOSURE INSTALLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	4	5	L-H4	I7	3-2	5-2	319	2Y3
			4		3	4	3		4	5							

8573-A MOULDING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS 380, 581, 660, 681

WORK PERFORMED: This chapter includes occupations concerned with moulding, pressing and curing rubber, plastic or related materials by such processes as injection, compression, lamination and vulcanization, to produce parts for mechanical or electrical equipment, household ware, vehicle tires and other articles. Worker functions include: setting up, operating or tending heaters, presses, injection-moulding machines, extruding machines or related equipment; manipulating equipment controls and hand tools or other devices to form or work products; working to close tolerances when moulding and finishing rubber stamps for printing or ear pieces for hearing aids; comparing dimensions and surface finish completed products to specified standards; and compiling data on job specifications from drawings or work orders. Work activities include: installing dies, rollers, stampers and other components in machines and connecting water and steam lines; weighing and mixing granular or liquid moulding materials; dumping materials into machine hoppers; acutating controls to start, stop and regulate operation of equipment; and examining products for bubbles, cracks, warping and other defects.

APTITUDES AND CAPACITIES; Workers in this cluster require: learning ability to understand the techniques of moulding rubber, plastic and related products, and to apply these techniques to set-up and operate compression and injection moulding machines and moulding and curing presses; spatial perception to observe machines in operation and note malfunctions or need for adjustment; to visualize the relationship and arrangement of parts and materials when setting up machines; and to visualize shape and appearance of completed product; form perception to examine products for surface defects such as bubbles, warping, splits and scratches; eye-hand-finger co-ordination and finger dexterity to set up moulding machines; to set type in chase of mould press to make rubber stamps; and make running adjustments to machines, such as synchronizing speed of emerging extrusion with take-up reel or conveyor; manual dexterity to mount moulds on press beds, connect steam, oil and water lines to mould, turn valves to regulate flow of water or steam through dies or plates and measure extruded or moulded material for conformance to specified dimensions; sufficient strength to perform medium work requiring frequent lifting and carrying of objects weighing up to twenty pounds, and lifting of objects weighing up to fifty pounds; near visual acuity to examine materials for defects such as bubbles, cracks, dents, scratches and wrinkles, and to read measuring instruments such as micrometers, calipers and gauges; adaptability to conditions such as heat, noise and the possibility of mechanical hazards and burns from moulding machines, especially for 8573-110 PLASTICS-MOULDING-MACHINE SETTER, 8573-118 PLASTICS-PRESS OPERATOR and 8573-222 CURING PRESSMAN.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; six months to two years of on-the-job training and related experience in rubber or plastic moulding.

ADVANCEMENT POSSIBILITIES: With experience and some additional training, workers may advance to higher skilled occupations within the cluster. Those with supervisory potenttial may advance to 8570-122 FOREMAN, PLASTIC PRODUCTS FABRICATING, ASSEMBLING AND REPAIRING. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profiles.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills within the cluster or with limited additional training to other appropriate occupations in Minor Group 857 FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS.

OCCUPATIONAL TITLES:

8573-110 PLASTICS-MOULDING-MACHINE SETTER
8573-114 RUBBER-STAMP MAKER
8573-162 HEARING-AID-EARPIECE MAKER
8573-222 CURING PRESSMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	4	3	4	5	L-M47	I	4-3	6-5	91	Y0
		4	5	4	4	5				5							

8573-C MOULDING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS 684, 685, 887

WORK PERFORMED: This chapter includes occupations concerned with moulding, pressing and curing rubber, plastic or related materials by such processes as injection, compression, lamination and vulcanization, to produce parts for mechanical or electrical equipment, household ware, vehicle tires and other articles. Worker functions include: setting up, operating or tending heaters, presses, injection-moulding machines, extruding machines or related equipment; manipulating equipment controls and hand tools or other devices to form or work products; working to close tolerances when moulding and finishing rubber stamps for printing or ear pieces for hearing aids; comparing dimensions and surface finish of completed products to specified standards; and compiling data on job specifications from drawings or work orders. Work activities include: installing dies, rollers, stampers and other components in machines and connecting water and steam lines; weighing and mixing granualr or liquid moulding materials; dumping materials into machine hoppers; actuating controls to start, stop and regulate operation of equipment; and examining products for bubbles, cracks, warping and other defects.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand moulding operations, and to carry out detailed written or oral work instructions; form perception to examine product for surface defects such as scratches, burrs or pits, cracks, dents and voids; eye-hand co-ordination and manual dexterity for such activities as placing metal patterns of specified contour into press beds, weighing and mixing ingredients, placing various materials into dies, pushing buttons to control press temperature and time cycles, stripping away moulded articles, and trimming excess material from products; sufficient strength to perform medium work requiring the frequent lifting and carrying of objects weighing up to twenty pounds, and lifting of objects weighing up to fifty pounds; adaptability to working in atmospheric conditions containing fumes, dusts and odors from hot plastic and rubber materials.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight years of general education; one to three months of on-the-job training; for 8573-170 DISPLAY-MANNEQUIN MOULDER, six months of on-the-job training and experience in moulding and casting.

ADVANCEMENT POSSIBILITIES: With experience and some additional training, workers in these clusters may advance to higher skilled occupations within the chapter, for example, 8573-186 EXTRUDING-MACHINE-OPERATOR HELPER may advance to 8573-166 EXTRUDING MACHINE-OPERATOR and similarly 8573-134 CURING-PRESS TENDER and 8573-138 PRESSMAN may advance to 8573-118 PLASTICS-PRESS OPERATOR. Those with supervisory potential way advance to 8570-122 FOREMAN, PLASTIC PRODUCTS FABRICATING, ASSEMBLING AND REPAIRING or 8570-126 FOREMAN, RUBBER PRODUCTS FABRICATING, ASSEMBLING AND REPAIRING. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within their respective cluster or with limited additional training to other appropriate occupations in Minor Group 857, FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS.

OCCUPATIONAL TITLES:

8573-170 DISPLAY-MANNEQUIN MOULDER
8573-174 RUBBER MOULDER
8573-178 COMPRESSION-MOULDING MACHINE TENDER
8573-226 FORM-RUBBER CUREMAN
8573-180 IMPREGNATOR-CORRUGATOR, PLASTIC SHEETS
8573-186 EXTRUDING-MACHINE OPERATOR HELPER
8573-182 PLASTICS CASTER
8573-130 PLATE CHANGER
8573-230 V-BELT CURER
8573-190 BLADDER MOULDER
8573-134 CURING-PRESS TENDER
8573-232 FIRE-HOSE CURER
8573-233 HEATER TENDER
8573-194 INJECTION-MOULDING-MACHINE TENDER
8573-138 PRESSMAN
8573-142 RECORED-PRESS TENDER
8573-198 SKIN FORMER
8573-200 SOFTBALL-CENTER MOULDER
8573-202 TIRE-TREAD MOULDER
8573-146 VACUUM-FORMING-MACHINE TENDER
8573-234 VULCANIZER TENDER
8573-206 MOULD FILLER AND STRIPPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	5	5	L-M47	I35	2	4-2	319	23Y
			5		3	4	3			4							

8575-A CUTTING AND FINISHING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS

WORK PERFORMED: This chapter includes occupations concerned with cutting, assembling and finishing rubber and plastic stock to produce plastic floor tiles, tires, rubber footwear parts, rubber air-brake hoses, automotive dashboards, plastic aircraft parts and similar articles. Worker functions include: operating or tending machines to cut, punch, press, drill, wash, dry or wind parts or products made from rubber, plastic and similar materials; manipulating knives, scissors, saws, templates and patterns to mark material and to trim, shape and buff articles; analyzing data from specifications and customers' requirements to determine design and select material from stock; working to close tolerances to lay out patterns; computing dimensions, quantity of materials and location of cutting lines; and comparing finished products with specified standards. Work activities include: adjusting machine controls and guides; mounting cutting dies, knives, grinding wheels and similar equipment in machines; verifying dimensions of finished parts or articles; and examining products for defects.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the techniques and procedures involved in working with rubber and plastic materials and to apply them to design, cut and fabricate a variety of products; spatial perception to visualize the size, shape, relationship and arrangement of parts represented in layouts or specifications; eye-hand-finger co-ordination to use draughting instruments to lay out and make patterns, and cutting tools to cut along marked lines; colour discrimination for 8575-110 FLOOR-COVERING-INSET CUTTER to select harmonious shades and colours that will enhance appearance of finished product; near visual acuity to read graduations on measuring instruments and to accurately follow patterns or designs; form perception to make visual comparisons of materials or products to detect cuts, blisters, cracks, wrinkles or other physical defects; finger dexterity to manipulate small objects such as nuts, bolts, screws and rivets, to thread materials through machine guides, or to tag and tie packages and bundles; manual dexterity to skilfully use routers, drills, sanders, wrenches or other hand and power tools; physical capacity to perform light to heavy work, and to reach for and handle a variety of parts, tools, materials and products.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: nine to twelve years of general education; six months to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this chapter may, with limited additional training, advance to appropriate occupations requiring similar basic skills elsewhere in Minor Group 857, FABRICATING ASSEMBLING AND REPAIRING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS. Workers with supervisory potential may advance to appropriate foreman occupations in 8570, FOREMEN: FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to other occupations requiring similar skills within their own or in other clusters, or in other chapters such as 8393, FILING, GRINING, BUGGING, CLEANING AND POLISHING OCCUPATIONS, N.E.C. and 8561, SHOEMAKING AND REPAIRING OCCUPATIONS.

OCCUPATIONAL TITLES:

8575-110	FLOOR-COVERING-INSET SETTER	8575-118	DISPLAY-BALLOON MAKER
8575-114	PLASTIC-SHEET WORKER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	3	3	3	4	3	3	3	5	3	L-M47	I	4-3	6-5	19	Y01
		3								4	4					190	
											5						

8575-C CUTTING AND FINISHING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS

WORK PERFORMED: This chapter includes occupations concerned with cutting, assembling and finishing rubber and plastic stock to produce plastic floor tiles, tires, rubber footwear parts, rubber air-brake hoses, automotive dashboards, plastic aircraft parts and similar articles. Worker functions include: operating or tending machines to cut, punch, press, drill, wash, dry or wind parts or products made from rubber, plastic and similar materials; manipulating knives, scissors, saws, templates and patterns to mark material and to trim, shape and buff articles; analyzing data from specifications and customers' requirements to determine design and select material from stock; working to close tolerances to lay out patterns; computing dimensions, quantity of materials and location of cutting lines; and comparing finished products with specified standards. Work activities include: adjusting machine controls and guides; mounting cutting dies, knives, grinding wheels and similar equipment in machines; verifying dimensions of finished parts or articles; and examining products for defects.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and follow written or oral instructions, and to acquire a knowledge of machine operations related to cutting and finishing rubber or plastic materials; eye-hand-finger co-ordination to make rapid and precise movements when adjusting machine controls, or when using cutting tools, such as knives, scissors or saws; eye-hand-foot co-ordination required for some occupations in Clusters A and B to position material, adjust settings and depress pedal to activate or control machine; form perception to make visual comparisons of materials or products to detect cuts, blisters, cracks, wrinkles or other physical defects; finger dexterity to manipulate small objects such as nuts, bolts, screws and rivets, to thread materials through machine guides, or to tag and tie packages and bundles; manual dexterity to skilfully use routers, drills, sanders, wrenches or other hand and power tools; physical capacity to perform light to heavy work, and to reach for and handle a variety of parts, tools, materials and products.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: six to eight years of general education; two weeks to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this chapter may, with limited additional training, advance to appropriate occupations requiring similar basic skills elsewhere in Minor Group 857, FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS. Workers with supervisory potential may advance to appropriate foreman occupations in 8570, FOREMEN: FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to other occupations requiring similar skills within their own or in other clusters, or in other chapters such as 8393, FILING, GRINDING, BUFFING, CLEANING AND POLISHING OCCUPATIONS, N.E.C. and 8561, SHOEMAKING AND REPAIRING OCCUPATIONS.

OCCUPATIONAL TITLES:

8575-142 CUTTER, RUBBER AND PLASTICS
8575-146 GASKET MAKER, CONCRETE PIPE
8575-150 PADDED-PRODUCTS REPAIRMAN
8575-154 REELER AND CUTTER, PLASTIC MATERIAL
8575-158 WINK CUTTER
8575-162 AIRCRAFT-TIRE-TUBE BALANCER
8575-166 BEAD ROLLER, BALLOON
8575-170 FOAM-CUSHION FABRICATOR
8575-174 LUGGAGE-BINDING ASSEMBLER
8575-178 RUBBER BUFFER
8575-182 SKYLIGHT ASSEMBLER
8575-186 SOLID-TIRE FINISHER
8575-190 STOCK LAY-UP MAN
8575-194 TIRE TIMMER, HAND
8575-198 TIMMER, MACHINE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	5	5	L-H4	I	2	3-2	139	2Y3
							3			4							

8576-A INSPECTING, TESTING, GRADING AND SAMPLING OCCUPATIONS: FABRICATING, ASSEMBLING AND REPAIRING, RUBBER, PLASTIC AND RELATED PRODUCTS

281, 381, 367, 387, 487, 684

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the fabrication, assembly and repair of rubber, plastic, and related products. Worker functions include: compiling pre-inspection information from instruction manuals or specifications, and data resulting from inspections and tests; comparing product dimensions and quality to specified standards; working to close tolerances when testing experimental tires or electrical rubber-goods; and handling materials, parts and products during quality-control work. Work activities include: examining items for defects and to determine repairs required; measuring articles to ensure conformance to specifications; marking or cutting out defective areas; testing, counting and weighing items; sorting, grading, bundling, stacking or packing products; recording test results; and writing reports of defects.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to acquire knowledge of company specifications and standards, and to understand and apply quality-control procedures and techniques; form perception to discern faults in materials, parts, or products to indicate repairs required or to reject defective products; eye-hand-finger co-ordination and manual dexterity to inspect products in process, to mark defective areas while product is moving through machine or on inspection table, to use a variety of measuring and test equipment, and to cut out defective sections; colour discrimination to perceive slight differences in colours and shades for 8576-126 LINOLEUM INSPECTOR, 8576-130 LINOLEUM-LINE INSPECTOR; strength to perform medium work involving the lifting and carrying of items and materials weighing up to fifty pounds; near visual acuity and accommodation for activities such as plotting and drawing graphs from test results, observing apparatus for electrical flash-over, using and reading measuring and testing devices, and observing products to detect minute imperfections such as ply separations, scratches and pattern defects; numerical ability to quickly and accurately perform arithmetic operations when counting bead wires and plies in cross section of tires, and when measuring defects and assessing effects of wear or other tests; clerical ability to record data properly, and to avoid perceptual errors when reading measuring instruments and specifications.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to twelve years of general education; two months to two years of combined on-the-job training and related experience in assembling, moulding and finishing rubber and plastic products, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to occupations requiring higher skills within their individual cluster, Those with supervisory potential may advance to 8570-118 FOREMAN, INSPECTING RUBBER, PLASTIC AND RELATED MATERIALS PRODUCTS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to occupations requiring similar basic skills within their individual cluster. With limited additional training, transfer may also be possible to appropriate occupations in Chapter 8176, INSPECTING, TESTING AND SAMPLING OCCUPATIONS: CHEMICAL, PETROLEUM, RUBBER, PLASTIC AND RELATED MATERIALS PROCESSING; for example, 8176-122 ASPHALT-ROOFING-MATERIALS INSPECTOR; 8176-134 RUBBER TESTER; and 8176 INSPECTOR, VINYL FABRICS.

OCCUPATIONAL TITLES:

8576-110 EXPERIMENTAL-TIRE INSPECTOR
8576-114 ELECTRICAL-RUBBER-GOODS TESTER
8576-118 INSPECTOR. PLASTIC AND RUBBER PRODUCTS
8576-122 GREEN-TIRE INSPECTOR
8576-126 LINOLEUM INSPECTOR
8576-130 LINOLEUM-LINE INSPECTOR
8576-134 TIRE CLASSIFIER
8576-146 PHONOGRAPH-RECORD TESTER
8576-150 TIRE INSPECTOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	4	3	3	3	5	5	L-M347	I	3	6-3	193	0Y3
		3	3				4	4	4	4	3						

8578 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK: FABRICATING, ASSEMBLING AND REPAIRING RUBBER, PLASTIC AND RELATED PRODUCTS

686, 687, 886, 887

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in the fabrication, assembly and repair of a wide variety of products made from rubber, plastic, fibreglass and related materials. Worker functions include: feeding parts and materials into machines and offbearing finished products; and handling cloths, spray guns, hand tools and other items while performing routine tasks. Work activities include: placing materials on mandrels or in moulds or fixtures; stripping moulded products such as toys or shoes from moulds or lasts; cutting, trimming, cementing and laminating materials or parts of articles; and cleaning and waxing moulds.

APTITUDES AND CAPACITIES: Labourers and elemental workers in this chapter require: learning ability to understand and follow simple instructions and procedures related to assembly, fabrication or repair of products; eye-hand-finger co-ordination and manual dexterity to handle materials, parts, assemblies and tools when loading, unloading, positioning, sorting and cleaning materials; capacity to work inside while exposed to fumes from solvents, odours from rubber or plastic materials, and dust from trimming and sanding units.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: no specified educational level, but eight years of schooling is prefered; on-the-job training, ranging from a short demonstration for some occupations to one month for others.

ADVANCEMENT POSSIBILITIES: Many of these occupations are considered entry jobs, and advancement is normally to more highly skilled occupations in Minor Group 857, FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, RUBBER, PLASTIC AND RELATED PRODUCTS, for example, 8578-162 RUBBER-FOOTWEAR SUB-ASSEMBLER may advance to 8571-130 RUBBER-FOOTWEAR ASSEMBLER; 8578-110 MOULDING-MACHINE OFFBEARER may advance to 8573-178 COMPRESSION-MOULDING-MACHINE TENDER or 8573-194 INJECTION-MOULDING-MACHINE TENDER.

TRANSFER POSSIBILITIES: Transfer may be to occupations requiring similar skills within this chapter, or to other occupations in labouring and elemental work in other chapters.

OCCUPATIONAL TITLES:

8578-110	MOULDING-MACHINE OFFBEARER
8578-112	BALLOON-FORM STRIPPER AND CLEANER
8578-114	BIAS-MACHINE-OPERATOR HELPER
8578-118	FOOTWEAR-MOULD-PRESS FEEDER
8578-122	HOSE LOADER AND STRIPPER
8578-126	MOULDED-PRODUCTS FINISHER
8578-130	MOULD FILLER
8578-138	RUBBER-SOLE-BUFFER, AUTOMATIC
8578-142	STRIPPER, MOULDED PRODUCTS
8578-146	TIRE CLEANER AND PAINTER
8578-150	TIRE-VALVE WORKER
8578-154	MOULD PREPARER
8578-158	EYEGLASS-FRAME TRIMMER
8578-162	RUBBER-FOOTWEAR SUB-ASSEMBLER
8578-166	BELT LAMINATOR, HAND
8578-170	EYEGLASS-PAD CEMENTER
8578-174	TIRE BAND WRAPPER
8578-178	STRING-TOP SEALER
8578-182	AIR-BAG EXTRACTOR
8578-186	CEMENTER, HAND
8578-190	OPENING-MACHINE FEEDER
8578-194	TREAD-SPLICE PRESSER
8578-198	SOLID-TIRE MOUNTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	5	5	4	4	5	4	4	4	5	5	L-M4	I7	1	2-1	13	23
										4							

8581-A MOTOR-VEHICLE MECHANICS AND REPAIRMEN 261, 281, 381, 384, 461, 684

WORK PERFORMED: This chapter includes occupations concerned with repairing and servicing automobiles, trucks, buses, motorcycles, snowmobiles, industrial trucks and other motor vehicles. Worker functions include: analyzing data obtained from test and diagnostic equipment to isolate or locate faults; manipulating and operating hand and power tools to dismantle, adjust, repair and assemble vehicles and accessories; working to close tolerances while repairing and adjusting carburetors, reboring cylinders and aligning steering mechanisms; and comparing vehicle parts or assemblies to determine need of repair or replacement, and assessing performance in accordance with acceptable standards. Work activities include: servicing new vehicles on delivery to dealer; replacing safety glass windows and windshields; salvaging usable parts from wrecked vehicles; steam-cleaning engines, bodies and vehicle parts; and installing heaters, radios, seat covers and other accessories.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand motor-vehicle repair-manual instructions and specifications and underlying principles of automotive vehicle construction and operation, and to use this knowledge to repair and service motor vehicles; spatial perception to understand and visualize relationships and arrangement of parts in automotive mechanisms and assemblies; form perception to detect faults in parts when assembling and adjusting motor-vehicle electrical and mechanical components and to observe and compare slight differences in shapes and dimensions; eye-hand co-ordination and finger dexterity to handle small objects, to use hand tools to assemble and adjust parts and to use precision equipment to test component parts or vehicle performances; manual dexterity to move the hands easily and skilfully when placing parts, making adjustments and tightening screws and nuts; strength to perform medium to heavy work requiring frequent lifting of assemblies weighing up to fifty pounds, and torquing nuts and bolts to specified foot-pounds; agility to work under or around vehicles in awkward positions such as lying down, stooping, kneeling and crouching while reaching for and handling parts, assemblies and tools; near visual acuity and depth perception when assembling or adjusting mechanical parts and assemblies; capacity to work, usually inside, while exposed to loud, intermittent noises from pneumatic wrenches, hammering and accelerating engines; adaptability to a variety of physical hazards such as exposure to fumes and dusts, grease and dirt, and working in close proximity to moving mechanical parts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: nine to ten years of general education; for most occupations, a four to five-year apprenticeship program which includes periods of full-time courses at a trade school; or a two to three-years approved course of studies relating to the trade, and a shortened apprenticeship period; completion of examination and licencing requirements; for other occupations, two to three years of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to higher skilled occupations within their individual cluster. Those with supervisory potential may advance to 8580-122 FOREMAN: MOTOR VEHICLE MECHANICS AND REPAIRMEN. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Experienced workers in this chapter who acquire knowledge of business practices may become self-employed.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to appropriate occupations requiring similar skills in Unit Group 8584, INDUSTRIAL, FARM AND CONSTRUCTION MACHINERY MECHANICS AND REPAIRMEN, or 8589, OTHER MECHANICS AND REPAIRMEN, N.E.C. Apprentices who are unable to complete their training may transfer to occupations such as 5145-110 SERVICE-STATION ATTENDANT.

OCCUPATIONAL TITLES:

8581-110 MOTOR-VEHICLE MECHANIC
8581-114 ENGINE REPAIRMAN
8581-118 INDUSTRIAL-TRUCK MECNANIC
8581-122 TRANSMISSION MECHANIC
8581-126 TROLLEY-COACH MECHANIC
8581-134 TUNE-UP MAN
8581-138 MECHANICAL-UNIT REPAIRMAN
8581-140 TRUCK-TRAILER REPAIRMAN
8581-142 BODY REPAIRMAN
8581-146 AUTOMOTIVE-AIR-CONDITIONING MECHANIC
8581-150 CARBURETOR REPAIRMAN
8581-154 FRONT-END MAN
8581-158 MOTORCYCLE REPAIRMAN
8581-162 NEW-CAR SERVICEMAN
8581-166 AUTOMOTIVE-BRAKE REPAIRMAN
8581-174 SNOWMOBILE REPAIRMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	3	$\underline{3}$	$\underline{3}$	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	5	4	M-H347	I567	4-3	7-6	190	Y01
		4	4	4		5					5						

8581-B MOTOR-VEHICLE MECHANICS AND REPAIRMEN 684, 687

WORK PERFORMED: This chapter includes occupations concerned with repairing and servicing automobiles, trucks, buses, motorcycles, snowmobiles, industrial trucks and other motor vehicles. Worker functions include: analyzing data obtained from test and diagnostic equipment to isolate or locate faults; manipulating and operating hand and power tools to dismantle, adjust, repair and assemble vehicles and accessories; working to close tolerances while repairing and adjusting carburetors, reboring cylinders and aligning steering mechanisms; and comparing vehicle parts or assemblies to determine need of repair or replacement, and assessing performance in accordance with acceptable standards. Work activities include: servicing new vehicles on delivery to dealer; replacing safety glass windows and windshields; salvaging usable parts from wrecked vehicles; steam-cleaning engines, bodies and vehicle parts; and installing heaters, radios, seat covers and other accessories.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand motor-vehicle repair-manual instructions and specifications and underlying principles of automotive vehicle construction and operation, and to use this knowledge to repair and service motor vehicles; spatial perception to understand and visualize relationships and arrangement of parts in automotive mechanisms and assemblies; form perception to detect faults in parts when assembling and adjusting motor-vehicle electrical and mechanical components and to observe and compare slight differences in shapes and dimensions; eye-hand co-ordination and finger dexterity to handle small objects, to use hand tools to assemble and adjust parts and to use precision equipment to test component parts or vehicle performances; manual dexterity to move the hands easily and skilfully when placing parts, making adjustments and tightening screws and nuts; strength to perform medium to heavy work requiring frequent lifting of assemblies weighing up to fifty pounds, and torquing nuts and bolts to specified foot-pounds; agility to work under or around vehicles in awkward positions such as lying down, stooping, kneeling and crouching while reaching for and handling parts, assemblies and tools; near visual acuity and depth perception when assembling or adjusting mechanical parts and assemblies; capacity to work, usually inside, while exposed to loud, intermittent noises from pneumatic wrenches, hammering and accelerating engines; adaptability to a variety of physical hazards such as exposure to fumes and dusts, grease and dirt, and working in close proximity to moving mechanical parts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: seven to nine years of general education; one month to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to higher skilled occupations within their individual cluster or from Cluster B to A. Those with supervisory potential may advance to 8580-122 FOREMAN: MOTOR VEHICLE MECHANICS AND REPAIRMEN. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Experienced workers in this chapter who acquire knowledge of business practices may become self-employed.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to appropriate occupations requiring similar skills in Unit Group 8584, INDUSTRIAL, FARM AND CONSTRUCTION MACHINERY MECHANICS AND REPAIRMEN, or 8589, OTHER MECHANICS AND REPAIRMEN, N.E.C. Apprentices who are unable to complete their training may transfer to occupations such as 5145-110 SERVICE-STATION ATTENDANT.

OCCUPATIONAL TITLES:

8581-170 AUTOMOTIVE-RADIATOR REPAIRMAN
8581-178 USED-CAR RENOVATOR
8581-182 AUTOMOBILE WRECKER
8581-184 GLASS INSTALLER
8511-122T CLUTCH REBUILDER
8581-186 MUFFLER INSTALLER
8581-190 SQUEAK, RATTLE AND LEAK MAN
8581-194 AUTOMOBILE-ACCESSORIES INSTALLER
8581-198 MOTOR-VEHICLE-MECHANIC HELPER
8581-202 SPRING SERVICEMAN
8581-206 BODY-REPAIRMAN HELPER
8581-210 STEAM CLEANER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	5	3	4	3	5	5	M-H347	I-B56	3-2	6-2	193	2Y0
	3		5		3	4		3			4		I456			13	2Y3

8582-A AIRCRAFT MECHANICS AND REPAIRMEN 261, 281

WORK PERFORMED: This chapter includes occupations concerned with servicing and repairing aircraft, airframe components, engines, accessories and related equipment. Work functions include: analyzing test data to evaluate the condition of engines, aircraft and equipment; compiling information from measurements and performance tests; comparing the state of items such as fuel and oil levels and tire pressures, and the condition and cleanliness of mechanical equipment to required standards; working to close tolerances and using precision-measuring instruments and testing equipment to ensure adjustments and repairs are made according to manufacturers' specifications and standards; and manipulating hand and power tools to repair or replace defective parts. Work activities include: inspecting airframe components for defects and testing controls, engines and accessories; repairing, replacing or adjusting faulty units; repairing fabric surface coverings; and replenishing supplies of fuel, oil and other consumable materials.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the principles governing aircraft construction and operation, and to apply the appropriate techniques of servicing, repairing and overhauling aircraft engines and accessories; spatial perception to visualize the arrangement and relationships of parts and assemblies represented in diagrams and manufacturers' manuals in order to disassemble, repair and reassemble engines and accessories; form perception to examine aircraft parts for signs of wear and other defects, and to read precision measuring equipment accurately; eye-hand-finger co-ordination to use tools to dismantle, repair and install equipment and to make adjustments requiring a high degree of accuracy; finger dexterity to precisely place and manipulate small parts when repairing aircraft engines and assembling aircraft accessories; manual dexterity to adjust, assemble, align, and install aircraft parts and assemblies, using hand and power tools; physical capacity to lift up to fifty pounds and to handle and carry aircraft equipment weighing up to twenty pounds; capacity to climb and balance on work platforms, to work in awkward positions such as stooping, kneeling and crouching, and reach into places of limited access in aircraft structures; near visual acuity to do fine, exacting work and colour vision to recognize colour coded parts; adaptability to exposure to fumes from aircraft fuel and to intense noise from engines; capacity to work outside in all weather conditions and while exposed to hazards such as propellers or jet engine intake and exhausts is required by Aircraft Mechanics.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: twelve years of general education; a four-year apprenticeship program which normally includes periods of study at a technical institute, or a similar form of on-the-job training.

ADVANCEMENT POSSIBILITIES:

Experienced workers with supervisory potential may also advance to 8580-110 FOREMAN: AIRCRAFT MECHANICS AND REPAIRMEN. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Advancement for some workers may also be to appropriate occupations in Chapter 8586, INSPECTING AND TESTING OCCUPATIONS, EQUIPMENT REPAIR, N.E.C.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations requiring similar skills, in Chapter 8515, AIRCRAFT FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

8582-110 AIRCRAFT MECHANIC
8582-114 AIRCRAFT-ACCESSORIES MECHANIC

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	2	4	3	3	2	4	3	M-2347	B-56	4	7-6	910	Y01
										5	4						

8582-C AIRCRAFT MECHANICS AND REPAIRMEN

WORK PERFORMED: This chapter includes occupations concerned with servicing and repairing aircraft, airframe components, engines, accessories and related equipment. Work functions include: analyzing test data to evaluate the condition of engines, aircraft and equipment; compiling information from measurements and performance tests; comparing the state of items such as fuel and oil levels and tire pressures, and the condition and cleanliness of mechanical equipment to required standards; working to close tolerances and using precision-measuring instruments and testing equipment to ensure adjustments and repairs are made according to manufacturers' specifications and standards; and manipulating hand and power tools to repair or replace defective parts. Work activities include: inspecting airframe components for defects and testing controls, engines and accessories; repairing, replacing or adjusting faulty units; repairing fabric surface coverings; and replenishing supplies of fuel, oil and other consumable materials.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply techniques used in servicing or repairing aircraft and aircraft equipment; spatial perception to remove and correctly replace parts on aircraft; eye-hand-finger co-ordination, finger dexterity and manual dexterity to use mechanic's hand tools, knife, buffer and portable vulcanizing equipment; strength to lift parts weighing up to fifty pounds and frequently carry items weighing twenty pounds; colour vision to distinguish colour coded piping when installing parts; capacity to climb and balance while working on aircraft and to stoop or crouch and reach into confined work areas; adaptability to outside work while subjected to high noise levels and adjacent hazards such as propellers and jet engine intakes and exhausts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten years of general education; three months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers in C may advance to occupations in Cluster A. Experienced workers with supervisory potential may also advance to 8580-110 FOREMAN: AIRCRAFT MECHANICS AND REPAIRMEN. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Advancement for some workers may also be to appropriate occupations in Chapter 8586, INSPECTING AND TESTING OCCUPATIONS, EQUIPMENT REPAIR, N.E.C.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations requiring similar skills, in Chapter 8515, AIRCRAFT FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

8582-122 AIRCRAFT-MECHANIC HELPER
8582-126 AIRCRAFT DE-ICER REPAIRMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	$\underline{3}$	4	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	4	4	M-2347	I-B56	3	5-4	193	2Y
				4				4		5	5						

8583-A RAIL TRANSPORT EQUIPMENT MECHANICS AND REPAIRMEN

361, 381

WORK PERFORMED: This chapter includes occupations concerned with repairing and servicing railway rolling stock, street and subway cars and related equipment. Worker functions include: manipulating hand and power tools and pipe-fitting and welding equipment to repair or rebuild mechanical or structural components; compiling data obtained by examination of cars, components and equipment to determine defects and assure overall conformance to standards and specifications; comparing parts and components to determine extent of wear and acceptability for use; and working to close tolerances when taking measurements or testing and adjusting units such as compressors, valves, bearings, traction motors, controls and brake assemblies. Work activities include: gauging the alignment of car sides; hoisting or jacking parts into position; replacing piping; cutting out and straightening damaged areas; welding replacement sections into position; and replacing defective parts in brake units, wheels, couplers and other mechanical assemblies.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the construction and functioning of railway rolling stock, motive-power units and related equipment, and to apply the appropriate techniques to repair, rebuild or adjust this equipment; spatial perception to visualize repair and replacement sequences for mechanical and structural components from manufacturers' drawings or specifications; form perception to detect wear and damage to mechanical assemblies and structural damage to floors, panels, roof sections, windows or upholstery; eye-hand-finger co-ordination and manual dexterity to dismantle, reassemble and test parts and equipment, using welding torch and a variety of hand and power tools; finger dexterity to make accurate and nimble finger movements when replacing parts in motors, generators or air-valves; near visual acuity to make accurate measurements, and to read gauges and charts in bright or dimly lit situations; adaptability to unpleasant atmospheric conditions caused by fumes and odours from solvents, paints and varnishes; physical capacity to perform light to heavy work, and to reach for and handle a variety of tools, parts and materials; agility to stoop, kneel, crouch or crawl to gain access to, and work in awkward positions; ability to speak clearly and receive information accurately for 8583-110 CARMAN and 8583-CARMAN HELPER: adaptability to some outside work activities, and to high noise levels from pneumatic hammering and riveting equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; for 8583-110 CARMAN and 8583-114 STREETCAR AND SUB-WAY CAR MECHANIC, a three to four-year apprenticeship program or similar form of on-the-job training; for other occupations, three months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES:

Experienced workers in Cluster A may
advance to 8580-134 FOREMAN: RAIL TRANSPORT EQUIPMENT REPAIRMEN. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Experienced workers in Cluster A may transfer to 8586-142 RAILWAY-CAR INSPECTOR or 8586-150 WHEEL-AND-AXLE INSPECTOR. With limited additional training, some workers may also transfer to occupations requiring similar skills in groups 8584 and 9533.

OCCUPATIONAL TITLES:

8583-110 CARMAN
8583-114 STREETCAR AND SUBWAY MECHANIC
8583-118 AIR-VALVE REPAIRMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	D	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	3	3	4	4	L-H347	I-B57	4-3	7-5	19	Y01
				4		5											

8584-A INDUSTRIAL, FARM & CONSTRUCTION MACHINERY MECHANICS & REPAIRMEN 261, 280, 281, 681

WORK PERFORMED: This chapter includes occupations concerned with repairing and servicing a wide variety of industrial and farm machinery, material handling and construction equipment and associated engines. Worker functions include: analyzing data concerning the condition and operating characteristics of equipment to determine the extent of repairs required; working to close tolerances when replacing and aligning parts or adjusting machinery; and manipulating hand and power tools during servicing or repair work. Work activities include: starting, observing and listening to equipment in operation to diagnose malfunctions; dismantling machines to remove damaged or worn parts; machining and fitting parts as required and reassembling units; installing machinery and supporting structures in industrial establishments; testing newly installed or repaired equipment; and making necessary adjustments.

APTITUDES AND CAPACITIES: learning ability to understand and apply mechanical repair procedures and principles to ensure the satisfactory functioning of machinery and reasoning ability to diagnose faults and take appropriate corrective actions; spatial perception to visualize from drawings or sketches, sequence of parts assembly and relative positions of machinery components; form perception to detect defects and excessive wear in machinery and to see slight differences in dimensions and shape of component parts; eye-hand-finger co-ordination and finger and manual dexterity to accurately assemble parts, to use a variety of hand and power tools and machine-tools, and to make fine adjustments of control devices; ability to climb, balance, stoop, kneel and crouch while repairing machinery; capacity to reach, handle, finger and feel when repairing and testing equipment; near visual acuity to examine machinery for signs of wear and malfunctioning, to make fine adjustments and to use precision-measuring equipment; capacity to work sometimes outside in adverse weather conditions for some occupations; capacity to work while exposed to noises from production machinery, generators, power tools, conveying or construction equipment; adaptability to unpleasant atmospheric conditions such as diesel and welding fumes and dust.

TRAINING AND ENTRY REQUIREMENTS: 10 years of general education; for 8584-122 MILLWRIGHT, 8584-378 CONSTRUCTION-EQUIPMENT MECHANIC and 8584-382 DIESEL MECHANIC, a 4 to 5 year apprenticeship program, usually provincially regulated, and in most provinces subject to licensing requirements; for other occupations, an apprenticeship program or similar form of on-the-job training, lasting from 2 to 4 years, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: With experience and additional training, advancement may be to other occupations requiring higher skills within the cluster. Those with supervisory potential may advance to 8580-114 FOREMAN: INDUSTRIAL, FARM AND CONSTRUCTION MACHINERY MECHANICS AND REPAIRMEN. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to occupations requiring similar skills within the chapter or with limited additional training, to appropriate occupations throughout Minor Group 858 MECHANICS AND REPAIRMEN, N.E.C.

OCCUPATIONAL TITLES:

8584-110 PRINTING-MACHINERY MECHANIC
8584-114 LOOM FIXER
8584-118 MACHINE FIXER, TEXTILE
8584-378 CONSTRUCTION-EQUIPMENT MECHANIC
8584-382 DIESEL MECHANIC
8584-122 MILLWRIGHT
8584-126 ORE-PROCESSING-EQUIPMENT REPAIRMAN
8584-130 POWERHOUSE REPAIRMAN
8584-326 DAIRY-EQUIPMENT REPAIRMAN
8584-330 FARM-EQUIPMENT MECHANIC
8584-134 METALWORKING-MACHINERY MECHANIC
8584-350 MINE-HOIST REPAIRMAN
8584-138 CHEMICAL-PROCESS-EQUIPMENT MECHANIC
8584-142 BAKERY-MACHINERY MECHANIC
8584-146 BOILERHOUSE REPAIRMAN
8584-354 CRANE REPAIRMAN
8584-150 FORGE-SHOP-MACHINERY REPAIRMAN
8584-154 GUN-WRAPPING-MACHINE MECHANIC
8584-170 MAINTENANCE MECHANIC, COMPRESSED-GAS PLANT
8584-178 OIL-TOOL-MAINTENANCE MAN
8584-162 PACKAGING-MACHINE MECHANIC
8584-182 POWDER-LINE REPAIRMAN
8584-166 QUILTING-MACHINE FIXER
8584-158 TANNERY-MACHINERY REPAIRMAN
8584-186 TREATMENT-PLANT MECHANIC
8584-190 WELDING-EQUIPMENT REPAIRMAN
8584-194 OVEN-EQUIPMENT REPAIRMAN
8584-198 SEWING-MACHINE MECHANIC
8584-202 AMMUNITION-ASSEMBLING-MACHINE ADJUSTER
8584-206 CARTON-FORMING-MACHINE REPAIRMAN
8584-358 CONVEYER REPAIRMAN
8584-210 FIBREGLASS-FORMING-MACHINE REPAIRMAN
8584-214 LAUNDRY-MACHINE MECHANIC
8584-218 RECORED-PROCESS-EQUIPMENT REPAIRMAN
8584-222 SEAMER-MACHINE REPAIRMAN
8584-226 TOBACCO-MACHINE ADJUSTER
8584-230 CARD GRINDER
8584-234 SHEARING-MACHINE FIXER
8584-174 MINING-MACHINERY MECHANIC

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3 4	4 3	3	3	4 5	3	3	3	4 5	5	M-H23467	I-B567	4-3	8-6	190	Y01

8584-B INDUSTRIAL, FARM AND CONSTRUCTION MACHINERY, MECHANICS AND REPAIRMEN

384, 584, 664, 684, 687

WORK PERFORMED: This chapter includes occupations concerned with repairing and servicing a wide variety of industrial machinery, farm machinery, material handling equipment, construction equipment and associated engines. Worker functions include: analyzing data concerning the condition and operating characteristics of equipment to determine the extent of repairs required; working to close tolerances when replacing and aligning parts or adjusting machinery; and manipulating hand and power tools during servicing or repair work. Work activities include: starting, observing and listening to equipment in operation to diagnose malfunctions; dismantling machines to remove damaged or worn parts; machining and fitting parts as required and reassembling units; installing machinery and supporting structures in industrial establishments; testing newly installed or repaired equipment; and making necessary adjustments.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply service and repair manual instructions, and to use hand and power tools and test equipment when repairing machinery; form perception to make visual comparisons in shape and general condition when assessing parts wear or defects; eye-hand-finger co-ordination and finger and manual dexterity to dismantle, clean, repair, assemble and adjust, or assist in carrying out these tasks for a variety of machinery, and performing simple functional tests; ability to climb, balance, stoop, kneel and crouch, while repairing machinery; capacity to reach, handle, finger and feel when repairing and testing equipment; near visual acuity to examine machinery for signs of wear and malfunctioning, to make fine adjustments and to use precision-measuring equipment; capacity to work sometimes outside in adverse weather conditions for some occupations; capacity to work while exposed to noises from production machinery, generators, power tools, conveying or construction equipment; adaptability to unpleasant atmospheric conditions such as diesel and welding fumes and dust.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: nine to ten years of general education; on-the-job training ranging from two months to two years, depending on the occupations.

ADVANCEMENT POSSIBILITIES: With experience and additional training, advancement possibilities for workers in this chapter may be to other occupations requiring higher skills within their individual cluster or from Cluster B to A. Those with supervisory potential may advance to 8580-114 FOREMAN: INDUSTRIAL, FARM AND CONSTRUCTION MACHINERY MECHANICS AND REPAIRMENT. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to occupations requiring similar skills within the chapter or, with limited additional training, to appropriate occupations throughout Minor Group 858, MECHANICS AND REPAIRMEN, N.E.C.

OCCUPATIONAL TITLES:

8584-238	MACHINE-CLOTHING MAN
8584-242	ROLL BUILDER
8584-246	CHEMICAL-PROCESS-EQUIPMENT-MECHANIC HELPER
8584-386	DIESEL-MECHANIC HELPER
8584-248	STONE-SAW SETTER
8584-390	CRAWLER-TRACK REPAIRMAN
8584-250	LOOM-REED MAN
8584-254	POWERHOUSE-REPAIRMAN HELPER
8584-258	ROLLER COVERER
8584-262	SEWING-MACHINE-MECHANIC HELPER
8584-266	SPINNERET CLEANER
8584-302	ANODE MAN
8584-270	CIGARETTE-MACHINE-DRUM REPAIRMAN
8584-274	LINERMAN
8584-278	WIRE REPAIRMAN
8584-394	CONSTRUCTION-EQUIPMENT-MECHANIC HELPER
8584-282	FLYER REPAIRMAN
8584-286	MILLWRIGHT HELPER
8584-290	ORE-PROCESSING-EQUIPMENT-REPAIRMAN HELPER
8584-294	SHAKER REPAIRMAN
8584-298	SIPHONING-HEAD CONDITIONER
8584-398	CRAWLER-TRACK-REPAIRMAN HELPER
8584-306	SIEVE REPAIRMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	4	5	M-H2347	I567	3-2	6-2	139	2Y
	3		5		3	4	4	3		5							2Y3

8585 - BUSINESS AND COMMERCIAL MACHINE MECHANICS AND REPAIRMEN

WORK PERFORMED: This chapter includes occupations concerned with repairing and servicing typewriters and calculating, accounting, card-punching, duplicating, adding and other business and commercial machines. Worker functions include: analyzing data obtained by examining machines and their components to determine nature of malfunctions; and working to close tolerances to make repairs and adjustments. Work activities include: inspecting, dismantling, testing and reassembling equipment using hand and power tools, precision instruments and test equipment; repairing, fabricating or replacing parts; cleaning and oiling mechanisms; and making modifications in accordance with diagrams and specifications.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply mechanical and electrical principles to ensure the satisfactory functioning of business and commercial machines; spatial perception to interpret diagrams and to visualize arrangement and relationships of parts and wiring to dismantle, repair and reassemble machines; form perception to discern pertinent details while inspecting machines for wear or malfunctions; eye-hand-finger co-ordination to use soldering equipment, hand and power tools and precision-measuring instruments; finger dexterity to adjust, repair or replace small parts such as gears, guides, rollers and pinions, in areas where freedom of hand movements is restricted; manual dexterity to skilfully dismantle and assemble machines; strength to perform light to medium work to repair and dismantle machines and occasional heavy work when lifting and carrying machines; acute hearing to detect malfunctioning machines or smooth running operation; near-visual acuity, accommodation and colour vision to fit and adjust small parts and to distinguish between colour-coded wires and components.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; one year course in office machine function and repair at a technical institute or trade school and two years of on-the-job training; or one to four years of on-the-job training, supplemented by manufacturers' training courses.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter with technical ability and supervisory potential may advance to 8580-126 FOREMAN: OFFICE MACHINE REPAIRMAN. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. With some additional training, advancement for some workers may also be to 5133-126 SALES REPRESENTATIVE, COMMERCIAL AND INDUSTRIAL EQUIPMENT AND SUPPLIES; or 5131-114 TECHNICAL SALESMAN, ELECTRONIC-DATA-PROCESSING.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are limited. However, some workers may transfer to appropriate occupations requiring similar basic skills in Chapter 8525, BUSINESS AND COMMERCIAL MACHINES FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C. Experienced workers with knowledge of business practices may also become self-employed.

OCCUPATIONAL TITLES:

8585-110	MAIL-PROCESSING-EQUIPMENT MECHANIC
8585-114	REPAIRMEN, PUNCHED-CARD MACHINES
8585-118	OFFICE-MACHINE SERVICEMAN
8585-122	SERVICEMAN, DICTATING AND TRANSCRIBING MACHINES
8585-126	CASH-REGISTER SERVICEMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	3	$\underline{3}$ $\underline{2}$	$\underline{3}$ $\underline{2}$	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	5	4	L-M467	I	4	7-5	190	Y01

8586-A INSPECTING AND TESTING OCCUPATIONS, EQUIPMENT REPAIR, N.E.C. 261, 281, 283, 287

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with quality-control activities in the servicing and repair of mechanical equipment such as motor vehicles, aircraft, industrial, farm and construction machinery, railway rolling stock and precision instrument equipment. Worker functions include: analyzing data obtained by examining or testing the equipment before or after repair; comparing measurements of parts or results of tests to ensure conformance to specifications; working to close tolerances when inspecting or testing components; and manipulating hand tools and test instrument controls; and handling parts during quality-control work. Work activities include: studying drawings and instruction manuals to determine standards and specifications to be met; visually examining machinery for physical defects or mechanical malfunction; driving vehicles or operating equipment to ensure performance standards are met; recording inspection or test data; and making recommendations for equipment improvement, repair or disposal.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the function and use of mechanical equipment and related test equipment to determine operating conditions and necessary repairs; form perception to inspect, examine and test mechanical equipment; eye-hand-finger co-ordination to operate mechanical equipment and to use test and measuring devices with accuracy; manual dexterity to move hands skilfully when using hand tools or turning valves and knobs to make adjustments and tests on mechanical parts and assemblies; strength to carry or lift parts, tools, measuring equipment and testing devices that occasionally weigh up to fifty pounds; ability to stoop, kneel, crouch and crawl, and make tests or examine machinery when in awkward positions; ability to feel contours and determine smoothness of surfaces with finger tips; colour vision to interpret colour-coded markings on components; spatial perception to interpret diagrams and visualize relationship of mechanical parts, and to detect faults in parts and assemblies; agility to climb and balance on ladders or workstands while inspecting large items of equipment; adaptability to work in the vicinity of noise such as the roar of aircraft engines under test, or the intermittent noises from power tools, pumps and accelerating engines.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; for most occupations, several years of experience as a qualified worker in the applicable trade, and training in quality-control work; for other occupations, one to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to the appropriate occupations in Unit Group 8580, FOREMEN: MECHANICS AND REPAIRMEN, N.E.C. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to occupations requiring similar basic skills and experience in Chapter 8526, INSPECTING AND TESTING OCCUPATIONS, FABRICATING AND ASSEMBLING METAL PRODUCTS, N.E.C., for example, 8586-110 AIRCRAFT INSPECTOR, REPAIR may transfer to 8526-242 AIRCRAFT INSPECTOR, ASSEMBLIES AND INSTALLATIONS.

OCCUPATIONAL TITLES:

8586-110	AIRCRAFT INSPECTOR, REPAIR
8586-114	LOCOMOTIVE INSPECTOR
8586-118	INSPECTOR, HEAVY EQUIPMENT
8586-122	INSPECTOR AND TESTER, METEOROLOGICAL EQUIPMENT
8586-126	TESTER, AUTOMOTIVE VEHICLE
8586-130	AIRCRAFT-ENGINE TESTER
8586-134	AIRCRAFT-HYDRAULICS TESTER
8586-138	MAINTENANCE ANALYST
8586-142	RAILWAY-CAR INSPECTOR
8581-130T	SHOP ESTIMATOR
8586-146	INSPECTOR, BUS PARTS
8586-150	WHEEL-AND-AXLE INSPECTOR
8586-154	GAS-METER TESTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	3	3	4	3	4	4	L-M2347	I-B5	4-3	8-6	91	0Y19
				4		4	4	3	4	5	5						

8586-B INSPECTING AND TESTING OCCUPATIONS, EQUIPMENT REPAIR, N.E.C. 684, 687

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with quality-control activities in the servicing and repair of mechanical equipment such as motor vehicles, aircraft, industrial, farm and construction machinery, railway rolling stock and precision instrument equipment. Worker functions include: analyzing data obtained by examining or testing the equipment before or after repair; comparing measurements of parts or results of tests to ensure conformance to specifications; working to close tolerances when inspecting or testing components; and manipulating hand tools and test instrument controls; and handling parts during quality-control work. Work activities include: studying drawings and instruction manuals to determine standards and specifications to be met; visually examining machinery for physical defects or mechanical malfunction; driving vehicles or operating equipment to ensure performance standards are met; recording inspection or test data; and making recommendations for equipment improvement, repair or disposal.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the function and use of mechanical equipment and related test equipment to determine operating conditions and necessary repairs; form perception to inspect, examine and test mechanical equipment; eye-hand-finger co-ordination to operate mechanical equipment and to use test and measuring devices with accuracy; manual dexterity to move hands skilfully when using hand tools or turning valves and knobs to make adjustments and tests on mechanical parts and assemblies; strength to carry or lift parts, tools, measuring equipment and testing devices that occasionally weigh up to fifty pounds; ability to stoop, kneel, crouch and crawl, and make tests or examine machinery when in awkward positions; ability to feel contours and determine smoothness of surfaces with finger tips; colour vision to interpret colour-coded markings on components.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to the appropriate occupations in Unit Group 8580, FOREMEN: MECHANICS AND REPAIRMEN, N.E.C. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to occupations requiring similar basic skills and experience in Chapter 8526, INSPECTING AND TESTING OCCUPATIONS, FABRICATING AND ASSEMBLING METAL PRODUCTS, N.E.C.

OCCUPATIONAL TITLES:

8586-158	PRESSURE-CONTROL CALIBRATOR
8586-162	TANK-CAR INSPECTOR
8586-166	REFRIGERANT-GAS-LEAK TESTER
8586-170	HEDDLE EXAMINER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	4	3	4	3	5	5	L-M347	I-B	3-2	4-2	91	OY2
	4				4	5	4		4	4	3					913	

8587 - WATCH AND CLOCK REPAIRMEN

281, 384, 681

WORK PERFORMED: This chapter includes occupations concerned with repairing clocks and watches, and mechanical movements used in clockwork-operated devices such as timers, meters and recorders. Worker functions include: working precisely when assembling and adjusting watch movements; analyzing condition or operation of timepieces to determine faults or nature of malfunctions; and manipulating hand tools to effect repairs. Work activities include: removing mechanisms from cases; examining parts using magnifying glass or loupe; repairing or replacing defective parts; cleaning and lubricating components; regulating movements, and reassembling timing devices.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the principles of clockwork mechanisms, and to apply the appropriate techniques to make repairs and adjust timepieces or clock-operated devices; spatial perception to visualize the arrangement and relationships of static or moving parts; form perception to examine movement of timepiece closely to discover cause of malfunction; eye-hand-finger co-ordination, finger dexterity and manual dexterity to disassemble and clean timepieces and other instruments, repair or replace damaged parts and lubricate or adjust mechanisms, using precision watchmaking instruments; near visual acuity to work with minute parts to close tolerances, often requiring use of magnifying glasses.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to eleven years of general education; for 8587-110 WATCH REPAIRMAN, a four to five-year apprenticeship program which includes regular periods of full-time attendance at a trade school; or a two to three-year program of courses in horology at an institute of technology or trade school and a shortened period of apprenticehsip; completion of certification requirements. For other occupations, three months to two years of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter with supervisory potential may advance to 8580-138 FOREMAN: WATCH AND CLOCK REPAIRMEN; or 8580-130 FOREMAN: PRECISION INSTRUMENT MECHANICS AND REPAIRMAN. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar skills, such as appropriate occupations, in Chapters 8527, PRECISION INSTRUMENTS AND RELATED EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C., and 8588, PRECISION INSTRUMENT MECHANICS AND REPAIRMEN.

OCCUPATIONAL TITLES:

8587-110 WATCH REPAIRMAN
8587-114 TAXIMETER REPAIRMAN
8587-118 PARKING-METER SERVICEMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	2	4	3	2	3	5	5	S-L47	I-B	4-3	7-4	910	YO
		3	3		3												

8588-A PRECISION INSTRUMENT MECHANICS AND REPAIRMEN

261, 281, 681

WORK PERFORMED: This chapter includes occupations concerned with installing and repairing scientific, engineering, optical and medical instruments, and cameras and similar equipment. Worker functions include: working to close tolerances when testing, adjusting, repairing and aligning precision instruments; manipulating component parts and hand tools to repair or replace defective units; analyzing data from test instruments to determine condition of equipment and cause of malfunctions; and comparing test data with specifications to ensure that standards are met. Work activities include: testing instrument and photographic equipment mechanisms and circuitry; disassembling faulty instruments; replacing defective and worn parts such as pivots, shafts and bearings; assembling equipment according to manufacturers' specifications; and making calibration adjustments.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the principles of precision-instrument construction and operation, and to apply appropriate techniques for installation, repair, and adjustment; numerical ability to analyze test results in order to diagnose cause of malfunction, and to apply shop mathematics to verify conformance to specifications; spatial perception to visualize, from drawings, the relationship and arrangement of parts in order to correctly set up and adjust precision instruments; form perception to examine machanism and circuitry for defects or signs of wear; eye-hand-finger co-ordination, finger dexterity and manual dexterity to manipulate small parts of optical and photographic instruments, test equipment and precision hand tools; capacity to occasionally carry or lift equipment weighing up to fifty pounds; capacity to crouch, crawl, stoop and kneel to replace and test equipment in places of limited access; near visual acuity to examine, repair, install and adjust small components, circuits and mechanisms and to read dials, gauges, meters and diagrams.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; for some occupations, a two to four-year apprenticeship program which may be provincially regulated; OR completion of an approved training course in a technical institute and a shortened period of apprenticeship; for other occupations, a two to four-year period of on-the-job training.

ADVANCEMENT POSSIBILITIES:

Experienced workers in Cluster A with supervisory potential may advance to 8580-130 FOREMAN: PRECISION INSTRUMENT MECHANICS AND REPAIRMEN. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities may be to other occupations within the individual cluster or, with limited additional training, to appropriate occupations requiring similar basic skills in Chapters 8525, BUSINESS AND COMMERCIAL MACHINES FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C., 8527, PRECISION INSTRUMENTS AND RELATED EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C., and 8585, BUSINESS AND COMMERCIAL MACHINE MECHANICS AND REPAIRMEN.

OCCUPATIONAL TITLES:

8588-110 AIRCRAFT-INSTRUMENT MECHANIC
8588-114 INSTRUMENT MECHANIC, UTILITIES
8588-118 INSTRUMENT REPAIRMAN
8588-122 SURVEYING-AND-OPTICAL-INSTRUMENT REPAIRMAN
8588-126 CAMERA REPAIRMAN
8588-130 PHOTO-FINISHING-EQUIPMENT REPAIRMAN
8588-134 GAS-METER REPAIRMAN
8588-138 GYROSCOPE REPAIRMAN
8588-142 WATER-METER REPAIRMAN
8588-146 SPEEDOMETER REPAIRMAN
8588-150 STEAM METERMAN
8588-154 THERMOSTAT REPAIRMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	3	5	5	L-M47	I	4-3	7-5	190	OY1
		4	4	4	2			2	2		4						OY

8588-B PRECISION INSTRUMENT MECHANICS AND REPAIRMEN

WORK PERFORMED: This chapter includes occupations concerned with installing and repairing scientific, engineering, optical and medical instruments, and cameras and similar equipment. Worker functions include: working to close tolerances when testing, adjusting, repairing and aligning precision instruments; manipulating component parts and hand tools to repair or replace defective units; analyzing data from test instruments to determine condition of equipment and cause of malfunctions; and comparing test data with specifications to ensure that standards are met. Work activities include: testing instrument and photographic equipment mechanisms and circuitry; disassembling faulty instruments; replacing defective and worn parts such as pivots, shafts and bearings; assembling equipment according to manufacturers' specifications; and making calibration adjustments.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand instructions from mechanic or repairman and to apply precision-instrument repair techniques; form perception to clean parts and to examine parts for defects; eye-hand-finger co-ordination, finger dexterity and manual dexterity to manipulate small parts and tools when disassembling, installing, repairing and adjusting instruments; capacity to occasionally carry or lift equipment weighing up to fifty pounds; capacity to crouch, crawl, stoop and kneel to replace and test equipment in places of limited access; near visual acuity to examine, repair, install and adjust small components, circuits and mechanisms and to read dials, gauges, meters and diagrams.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: nine to eleven years of general education; three months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in helper occupations in Cluster B may, with experience and some additional training, advance to higher skilled occupations in Cluster A.

TRANSFER POSSIBILITIES: Transfer possibilities may be to other occupations within the individual cluster or, with limited additional training, to appropriate occupations requiring similar basic skills in Chapters 8525, BUSINESS AND COMMERCIAL MACHINES FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C; 8527, PRECISION INSTRUMENTS AND RELATED EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C.; and 8585, BUSINESS AND COMMERCIAL MACHINE MECHANICS AND REPAIRMEN.

OCCUPATIONAL TITLES:

8588-158	AIRCRAFT-INSTRUMENT-MECHANIC HELPER
8588-162	INSTRUMENT-MECHANIC HELPER, UTILITIES
8588-166	INSTRUMENT-REPAIRMAN HELPER
8588-170	SURVEYING-AND-OPTICAL-INSTRUMENT-**REPAIRMAN** HELPER
8588-174	CALIBRATOR, TORQUE WRENCH
8588-178	GAS-METER-REPAIRMAN HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3 4	4	4 .	3 4	3 4	4	3	3 4 2	3 2	5	4 5	L-M347	I	3-2	5-3	139	2Y

8591-A JEWELLERY AND SILVERWARE FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS

261, 281, 381, 681

WORK PERFORMED: This chapter includes occupations concerned with fabricating, assembling and repairing fine and costume jewellery and precious metal ware. Worker functions include: analyzing data obtained by examining and considering the properties of diamonds and other precious stones to determine their value, purity, physical structure, colour-grading, cleavage lines and other relevant factors; working with utmost precision when measuring, marking, cutting, grinding, polishing and setting precious stones, or when fabricating and repairing silverware or jewellery; and manipulating and operating a variety of hand and power tools, optical aids and related equipment. Work activities include: shaping and setting gems; fabricating rings, brooches and bracelets from precious or semi-precious metals; assembling trophies, tableware, dresser sets and ornamental articles; and machining, riveting, soldering, cementing, abrading or polishing articles.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the composition and structure of precious stones and metals, and to acquire a high degree of skill to cut diamonds, appraise, shape or set gems, fabricate and repair jewellery, or assemble and repair silver hollow-ware; numerical ability to accurately compute dimensions, cutting angles, machine speeds or tolerances; spatial perception to visually imagine shape and form of jewellery or hollow-ware design in order to co-ordinate elements into a unified and pleasing article; form perception to detect slight differences, imperfections or irregularities when fabricating jewellery or metal ware, cutting diamonds or appraising or setting gems; eye-hand-finger co-ordination and finger dexterity to mark cutting lines, cut and polish precious stones and solder intricate and fine pieces of jewellery to form rings, bracelets and brooches; manual dexterity to skilfully perform a variety of tasks such as finishing articles with hand files and buffing machines, drilling and sawing open designs in silverware or hammering out deformities in hollow-ware; capacity to reach for and handle parts, tools and materials; near visual acuity, depth perception and good colour vision to do very fine and intricate hand work, and additionally for workers in Cluster A to observe the various characteristics in diamonds and other precious stones; adaptability to work situations where there is a possibility of injury from cutting, grinding polishing equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; a two to four-year apprenticeship program, or a similar form of on-the-job training, depending on the occupation; or for some occupations, a two-year course in jewellery and silverware work at an institute of technology, and on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in Cluster A with supervisory potential may advance to 8590-114 FOREMAN, JEWELLERY AND SILVERWARE WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Some skilled workers in Cluster A who acquire knowledge of business practices may also become self-employed as owner of their own establishment.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are limited, however workers may, with additional training, transfer to some occupations in other chapters that require similar skills, for example, 8587, WATCH AND CLOCK REPAIRMEN or 8588, PRECISION INSTRUMENT MECHANICS AND REPAIRMEN.

OCCUPATIONAL TITLES:

8591-110 DIAMOND CUTTER
8591-114 LAPIDARY
8591-118 GEMOLOGIST
8591-122 JEWELLER
8591-126 PRECIOUS STONE SETTER
8591-210 SILVERSMITH
8591-214 HAMMERSMITH

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	2	4	3	2	2	5	3	S-L47	I6	4-3	8-6	910	0Y9
			4				2	3	3		4						

8591-B JEWELLERY AND SILVERWARE FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS

682, 684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with fabricating, assembling and repairing fine and costume jewellery and precious metal ware. Worker functions include: analyzing data obtained by examining and considering the properties of diamonds and other precious stones to determine their value, purity, physical structure, colour-grading, cleavage lines and other relevant factors; working with utmost precision when measuring, marking, cutting, grinding, polishing and setting precious stones, or when fabricating and repairing silverware or jewellery; and manipulating and operating a variety of hand and power tools, optical aids and related equipment. Work activities include: shaping and setting gems; fabricating rings, brooches and bracelets from precious or semi-precious metals; assembling trophies, tableware, dresser sets and ornamental articles; and machining, riveting, soldering, cementing, abrading or polishing articles.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the methods and techniques of fabricating, repairing and assembling production jewellery and silverware; spatial perception to visualize how parts fit together, and finished articles during their fabrication and assembly; form perception to perceive pertinent details in jewellery and silverware, such as clarity of design, lustre and scratches, rough joints or other surface imperfections; eye-hand-finger co-ordination and manual dexterity to accurately and rapidly set up, adjust and use various types of precision tools and equipment; finger dexterity to manipulate small objects and to join minute parts together to form articles; capacity to reach for and handle parts, tools and materials; near visual acuity, depth perception and good colour vision to do very fine and intricate hand work; adaptability to work situations where there is a possibility of injury from cutting, grinding polishing equipment, and in addition some workers in Cluster B may work with, or in proximity to, equipment that creates considerable noise.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: six to eight years of general education; one month to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, some workers in Cluster B may advance to occupations requiring higher skills in that Cluster, or to some occupations in Cluster A.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are limited, however workers may, with additional training, transfer to some occupations in other chapters that require similar skills, for example, 8587, WATCH AND CLOCK REPAIRMEN or 8588, PRECISION INSTRUMENT MECHANICS AND REPAIRMEN.

OCCUPATIONAL TITLES:

8591-218 POLISHER, SILVERWARE
8591-222 FLATWARE-BUFFING-MACHINE SET-UP OPERATOR
8591-150 BENCH HAND
8591-154 RING MAKER
8591-158 RING STAMPER
8591-226 PROFILE TRIMMER
8591-130 CHAIN MAKER, HAND
8591-162 EXPANSION-BRACELET ASSEMBLER
8591-230 MOUNTER, HOLLOW-WARE
8591-166 PEARL-EAR-RING MAKER
8591-170 POLISHER
8591-234 TROPHY ASSEMBLER
8591-238 HOLLOW-WARE-BUFFING-MACHINE TENDER
8591-174 ARTIFICAL-PEARL MAKER
8591-242 CEMENTER, KNIFE PARTS
8591-178 CHARGER
8591-182 FINDINGS FINISHER
8591-186 CHAIN-MAKING-MACHINE TENDER
8591-190 RIVETER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	$\underline{4}$	$\underline{3}$	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	5	4	S-L47	I56	3-2	5-2	139	2Y3
				$\underline{3}$		5	$\underline{4}$	4			5						

8592A-B SHIPBUILDING OCCUPATIONS 261, 381

WORK PERFORMED: This chapter includes occupations concerned with building and repairing metal or wooden ships. Worker functions include: analyzing data from drawings and specifications to lay out lines of ship, reference points on structural parts or locations for installing equipment during ship construction; working to close tolerances when measuring, fitting and joining parts; manipulating hand and power tools when installing structural parts, piping and machinery; and handling shipbuilding tools and materials. Work activities include: marking reference points on drydock or way; building keel blocks, cradles, shoring and other supports for ships in dock; bolting, riveting, or welding parts together; installing ship's piping systems; caulking seams in wooden hulls or deck planking; installing masts, booms rigging and other gear on ships; and transporting materials to and about work site.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply shipbuilding techniques and reasoning ability to make decisions or judgments concerning sequence of operations, work procedures or materials used; numerical ability to perform arithmetic calculations accurately and quickly when calculating quantity, size or shape of items to be fabricated; spatial perception to visualize the arrangement of structural components and to judge distances when hoisting and positioning members or prefabricated sections, and aligning keel blocks prior to drydocking operations; form perception for inspecting finished work to ensure it meets specified standards; eye-hand co-ordination and manual dexterity to use hand tools and power tools to work to close tolerances, or when splicing wire cable and rope; finger dexterity to manipulate small items and to operate manual controls of power tools; eye-hand-foot co-ordination for 8592-130 RIGGER, to work at heights, climb masts and rigging and balance in precarious positions while performing work activities;strength to perform medium to heavy work, occasionally involving the lifting of weights up one hundred pounds; agility to climb ladders and maintain balance on scaffolding or rigging, and to work in awkward positions such as stooping, kneeling or crouching while reaching for and handling tools and materials in restricted or confined areas; near visual acuity for close-up work and perception; adaptability to working both inside or outside while exposed to a wide variety of temperatures or weather conditions and exposure to the continuous loud noise of a shipyard; adaptability to conditions where a number of physical hazards are prevalent, such as falling, being struck by falling objects and close proximity to operating machines; adaptability to working in ship's tanks and other spaces where there may be injurious effects from gases, fumes and dusts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; three to four or more years of apprenticeship or similar form of on-the-job training.

ADVANCEMENT POSSIBILITIES: With experience and additional training, some workers in this chapter may advance to higher skilled occupations within their own cluster or progressively from Cluster B to Cluster A. Workers with supervisory potential may advance to appropriate foreman positions, such as 8590-118 FOREMAN, MARINE CRAFT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS: or 8590-130 DOCK-MASTER. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to other occupations requiring similar skills within the chapter. With limited additional training, transfer may also be to occupations requiring similar basic skills, for example, 8592-118 SHIPWRIGHT, WOOD, and 8592-138 JOINER, may transfer to 8592-198 BOATBUILDER, WOOD, or to an appropriate occupation in Minor Group 835, WOOD MACHINING OCCUPATIONS.

OCCUPATIONAL TITLES:

8592-114 SHIPWRIGHT, METAL
8592-118 SHIPWRIGHT, WOOD
8592-122 PIPE FITTER
8592-126 SHIPFITTER
8592-130 RIGGER
8592-138 JOINER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	3	3	3	3	3	4	3	3	3	3	4
	2			2					2	4	5

PA	EC	GED	SVP	INTS.	TEMPS.
M-H2347	B567	4-3	8-7	190	0Y1

8592A-C SHIPBUILDING OCCUPATIONS 684, 687

WORK PERFORMED: This chapter includes occupations concerned with building and repairing metal or wooden ships. Worker functions include: analyzing data from drawings and specifications to lay out lines of ship, reference points on structural parts or locations for installing equipment during ship construction; working to close tolerances when measuring, fitting and joining parts; manipulating hand and power tools when installing structural parts, piping and machinery; and handling shipbuilding tools and materials. Work activities include: marking reference points on drydock or way; building keel blocks, cradles, shoring and other supports for ships in dock; bolting, riveting or welding parts together; installing ship's piping systems; caulking seams in wooden hulls or deck planking; installing masts, booms rigging and other gear on ships; and transporting materials to and about work site.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to apply common-sense understanding to carry out written or oral instructions correctly; form perception to detect damaged areas when preparing surfaces for refinishing or when caulking seams to make them watertight; eye-hand co-ordination to make movement responses with the hands quickly and accurately; manual and finger dexterity to move the hands, wrists and fingers easily and quickly when splicing wire rope or cordage and sewing canvas; eye-hand-foot co-ordination for 8592-162 RIGGER HELPER to move and manoeuvre weights in close quarters in response to signals from co-workers; strength to perform medium to heavy work occasionally involving the lifting of weights up to one hundred pounds; agility to climb ladders and scaffolding and to maintain balance and work in awkward positions such as kneeling, crouching or stooping while handling hand and power tools and other equipment or materials; adaptability to working both inside and outside while exposed to a variety of temperatures and seasonal weather conditions, and the continuous noise of shipyard and operations; adaptability to conditions where a variety of hazards are prevalent such as danger of falls, falling objects, close proximity to operating machines and possible injurious effects of fumes, dusts, mists and gases.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; one month to one year of on-the-job training, depending on the occupation.

ADVANCEMENT POSSIBILITIES: With experience and additional training, some workers in this chapter may advance to higher skilled occupations within their own cluster or progressively from Cluster C to B and to A. Workers with supervisory potential may advance to appropriate foreman positions, such as 8590-118 FOREMAN, MARINE CRAFT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS; or 8590-130 DOCK-MASTER. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to other occupations requiring similar skills within the chapter. With limited additional training, transfer may also be to occupations requiring similar basic skills.

OCCUPATIONAL TITLES:

8592-142	PNEUMATIC-TOOL OPERATOR
8592-150	WOOD CAULKER
8592-154	SHIPWRIGHT HELPER
8592-158	SHIPFITTER HELPER
8592-162	RIGGER HELPER
8592-166	PIPE-FITTER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	3	5	M-H234	B-567	3	6-3	193	2Y
	3		4				3										

8592B-A MARINE CRAFT MECHANICS

261, 281

WORK PERFORMED: This chapter includes occupations concerned with installing, repairing and adjusting outboard motors, marine engines, machinery and auxiliary equipment in ships, boats and other marine craft. Worker functions include: analyzing data from drawings or other specifications to determine installation or repair procedures; working to close tolerances when laying out, positioning, securing and connecting equipment; comparing performance of installed equipment to specifications to ensure acceptable standards are met; manipulating hand tools when fitting parts; and handling materials, bars, rollers and lifting devices. Work activities include: bolting, screwing, drilling or machining parts and assemblies during installation and repair work; installing accessories such as fuel lines and electrical or mechanical controls; dismantling faulty equipment and replacing or repairing defective parts; and inspecting and testing machinery during dock and sea trials.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the construction of various types of engines and the functions of component parts and accessories, and reasoning ability and judgment to diagnose faults and select the best method of repair; numerical ability to make calculations for accurately positioning machinery and determining lay-out locations of piping systems for steam, water and fuel; spatial perception to visualize the relative position of machines and accessories and the relationship between moving and static components; form perception to detect defects during routine visual inspections; eye-hand co-ordination to quickly and accurately poistion parts and use hand and power tools; finger dexterity to make precise and nimble finger movements when manipulating small objects; manual dexterity to install gears, tighten bolts and replace mechanical parts; strength to perform medium to heavy work, involving the lifting and carrying of equipment, machinery and replacement parts weighing up to one hundred pounds; agility to crawl into confined or restricted areas and to work in awkward positions, such as kneeling, stooping or crouching while reaching for, handling and fingering parts, hand tools and power tools; good hearing to detect malfunctions by listening to engine sounds; near visual acuity to perform close-up work, and good depth perception and colour vision; adaptability to inside or outside conditions while exposed to the loud noise normally prevalent in a shipyard or the noise of engines being tested; adaptability to conditions where a variety of hazards exist such as the danger of falls or injury from falling objects; proximity of operating machinery, and possibility of cuts, bruises and burns when using hand and power tools.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; a four to five-year apprenticeship which may be provincially regulated, or a similar form of on-the-job training; completion of certification requirements.

ADVANCEMENT POSSIBILITIES: Those with supervisory potential may advance to 8590-118, FOREMAN, MARINE CRAFT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS or 8590-134, FOREMAN, MARINE SERVICE. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: With limited additional training, experienced workers in A may transfer to appropriate occupations requiring similar basic skills in Chapters 8596, INSPECTING, TESTING AND GRADING OCCUPATIONS: PRODUCT FABRICATING, ASSEMBLING AND REPAIRING, N.E.C. or Chapter 8523, INDUSTRIAL, FARM, CONSTRUCTION AND OTHER MECHANIZED EQUIPMENT AND MACHINERY FABRICATING AND ASSEMBLING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

8592-134	ENGINE FITTER	8592-206	OUTBOARD-MOTOR MECHANIC
8592-202	MARINE-ENGINE MECHANIC		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	3	4	4	M-H3467	B-56	4	7-6	190	OY1

8592C-A BOATBUILDING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with fabricating assembling and repairing wooden, aluminum, fibreglass or other types of boats and small craft. Worker functions include: analyzing data from specifications and drawings; comparing construction of completed boats to specified standards; working to close tolerance when laying out and fabricating parts; manipulating hand and power tools, brushes and measuring instruments; and handling parts and materials. Work activities include: laying out full-scale outline and reference points on mould-loft floor; making templates; shaping wooden parts using steam-box and moulds; cutting, positioning and aligning parts and fastening them by bolting, screwing, stapling, gluing, riveting or welding; caulking seams with sealing compound; fabricating and installing masts, booms, ladders, machinery mountings and steering controls; sanding and finishing surfaces; covering canoe hulls with canvas; and applying preservative coatings.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply boat building techniques and processes and to use judgment in planning sequence of operations and selection of tools and materials; numerical ability to use shop mathematics to solve practical problems; spatial perception to visualize the three dimensional form of the actual and mirror-image shape of components and the relationship of static and moving parts; form perception to verify that work is completed in accordance with specified standards; eye-hand co-ordination and manual dexterity to use hand tools and manually-controlled power tools when executing precision work; finger dexterity to manipulate small objects quickly and accurately and to actually inspect finished surfaces for imperfections; physical capacity to lift and carry items such as lumber, structural parts and ladders weighing up to fifty pounds; agility to climb ladders and scaffolding, to maintain balance, and to work in awkward positions such as stooping, kneeling or crouching while reaching for and handling workpieces, hand tools and power tools; visual acuity for both close-up and distant work, good depth perception and colour vision; adaptability to loud and almost continuous noise from pneumatic tools and other types of machinery; adaptability to conditions where there are a variety of hazards or risk of injury from falls or from falling objects, burns from steam-box and lacerations when using power tools and shop machines.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten years of general education; a four-year apprenticeship program which may be provincially regulated, or a similar form of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for some workers in this chapter may be to 8590-118 FOREMAN, MARINE CRAFT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS; or 8590-134 FOREMAN, MARINE SERVICE. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: With limited additional training, some workers in this chapter may transfer to appropriate occupations requiring similar basic skills in Chapter 8596, INSPECTING, TESTING AND GRADING OCCUPATIONS: PRODUCT FABRICATING, ASSEMBLING AND REPAIRING, N.E.C. Similarly, 8592-198 BOATBUILDER, WOOD may transfer to 8592-118 SHIPWRIGHT, WOOD, 8592-138 JOINER or 8781-110 CARPENTER.

OCCUPATIONAL TITLES:

8592-198 BOATBUILDER, WOOD

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	2	3	4	3	3	3	4	5	M-2347	I-56	4	7	190	OY14

8592C-B BOATBUILDING OCCUPATIONS 681, 684, 687

WORK PERFORMED: This chapter includes occupations concerned with fabricating assembling and repairing wooden, aluminum, fibreglass or other types of boats and small craft. Worker functions include: analyzing data from specifications and drawings; comparing construction of completed boats to specified standards; working to close tolerance when laying out and fabricating parts; manipulating hand and power tools, brushes and measuring instruments; and handling parts and materials. Work activities include: laying out full-scale outline and reference points on mould-loft floor; making templates; shaping wooden parts using steam-box and moulds; cutting, positioning and aligning parts and fastening them by bolting, screwing, stapling gluing, riveting or welding; caulking seams with sealing compound; fabricating and installing masts, booms, ladders, machinery mountings and steering controls; sanding and finishing surfaces; covering canoe hulls with canvas; and applying preservative coatings.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to apply common-sence understanding to carry out written or oral instructions and to use judgment in selecting tools and materials; form perception to inspect finished work for conformance to specified standards; eye-hand co-ordination to make quick and accurate movements when using hand tools and manually-controlled power tools;finger dexterity to make accurate and nimble finger movements when manipulating small objects, such as rivets, bolts and screws; manual dexterity to move the hands and wrists easily and skilfully when reaching for and handling workpieces, hand tools and manually-controlled power tools; physical capacity to lift and carry items weighing up to one hundred pounds and agility to work in awkward positions such as kneeling, crouching or stooping when working in confined areas; adaptability to loud noises from pneumatic tools and other types of equipment; adaptability to conditions where a variety of hazards or risk of injury exist such as cuts and bruises from power tools and shop equipment and burns during steam-box or welding operations.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten years of general education; a four-year apprenticeship program which may be provincially regulated, or a similar form of on-the-training.

ADVANCEMENT POSSIBILITIES: Advancement for some workers in this chapter may be to 8590-118 FOREMAN, MARINE CRAFT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS; or 8590-134, FOREMAN, MARINE SERVICE. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: With limited additional training, some workers in this chapter may transfer to appropriate occupations requiring similar basic skills in Chapter 8596, INSPECTING, TESTING AND GRADING OCCUPATIONS: PRODUCT FABRICATING, ASSEMBLING AND REPAIRING, N.E.C. Similarly, 8592-210 BOAT BUILDER, ALUMINUM may transfer to 8529-198 METAL-PRODUCTS ASSEMBLER.

OCCUPATIONAL TITLES:

8592-210	BOAT BUILDER, ALUMINUM
8592-214	CANOE BUILDER
8592-218	FIBREGLASS-BOAT ASSEMBLER
8592-226	CANVAS-CANOE COVERER
8592-230	VENEER LAYER, PLYWOOD BOAT
8592-234	CANVAS-CANOE WATERPROOFER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	5	5	M-H34	I-56	3-2	5-2	19	2Y
	3			3	3	4	4			4						193	

8593- A PAPER PRODUCT FABRICATING AND ASSEMBLING OCCUPATIONS

360, 680

WORK PERFORMED: This chapter includes occupations with fabricating and assembling paper products such as bags, cartons, liners and envelopes. Worker functions include: setting up and maintaining bag, envelope and other paper products making machines; operating, tending for feeding machines that cut, slot, crease or form paper into various articles; comparing dimensions and quality of finished products to specified standards; manipulating paper parts and stapling guns, glue applicators and other work aids to fabricate and assemble articles by hand; compiling data from work orders to determine product specifications and amounts of materials needed; handling materials and supplies. Work activities include: installing and adjusting guides, rollers, knives and other components in machines; placing or threading materials into machines; moving controls to start, stop and regulate equipment; and examining completed products for defects.

APTITUDES AND CAPACITIES: Workers in this cluster requre: learning ability to comprehend the basic principles of paper product fabricating machines and presses, to make reasoned judgments concerning their set up, operation and adjustment, and to understand and apply work instructions; spatial perception to visualize, from specifications, proper installation and adjustment of gears, cutting and scoring dies, plungers, rollers and guides, form perception to discern irregularities and imperfections in the size and shape of paper products such as bags and cartons; eye-hand-finger co-ordination to rapidly and accurately set up, operate and adjust machines and manipulate hand tools; finger dexterity to rapidly and accurately manipulate small switches, controls, and hand tools; manual dexterity to easily and skilfully install, remove and assemble machine components and paper articles; capacity to perform medium work, requiring frequent lifting and carrying of objects weighing up to twenty pounds, with occasional lifting of objects up to fifty pounds; near visual acuity to make close inspection of paper products and machine mechanisms; adaptability to working in a noisy environment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; three months to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this chapter may, with additional training, advance to occupations requiring higher skills within their individual cluster or in other clusters within the chapter. Experienced workers may also advance to quality-control occupations such as 8596-208 INSPECTOR, PAPER PRODUCTS. Those with supervisory potential may also advance to 8590-126 FOREMAN, PAPER PRODUCT FABRICATING AND ASSEMBLING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within the chapter, or with limited additional training, to appropriate occupations in Chapter 8599B, OTHER PRODUCT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, N.E.C., for example, 8599-790 SLITTING-MACHINE OPERATOR; 8599-794 CUTTER OPERATOR; 8599-798 DIE-CUTTING-MACHINE OPERATOR; 8599-802 CUTTER, MACHINE; 8599-806 TUBE-CUTTING MACHINE TENDER; and 8599-810 SLITTING-MACHINE-OPERATOR HELPER.

OCCUPATIONAL TITLES:

8593-110	BAG-MAKING-MACHINE SET-UP MAN
8593-114	ENVELOPE-MAKING-MACHINE SET-UP MAN
8593-122	CYLINDER PRESSMAN
8593-126	PLATEN PRESSMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	3	3	5	4	M-4	I-5	4-3	7-5	91	Y09
		3		4				4		4	5						Y0

8593-B PAPER PRODUCT FABRICATING AND ASSEMBLING OCCUPATIONS 582, 662, 680, 682, 684

WORK PERFORMED: This chapter includes occupations with fabricating and assembling paper products such as bags, cartons, liners and envelopes. Worker functions include: setting up and maintaining bag, envelope and other paper products making machines; operating, tending or feeding machines that cut, slot, crease or form paper into various articles; comparing dimensions and quality of finished products to specified standards; manipulating paper parts and stapling guns, glue applicators and other work aids to fabricate and assemble articles by hand; compiling data from work orders to determine product specifications and amounts of materials needed; handling materials and supplies. Work activities include: installing and adjusting guides, rollers, knives and other components in machines; placing or threading materials into machines; moving controls to start, stop and regulate equipment; and examining completed products for defects.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to comprehend the basic principles of paper product fabricating machines and presses, to make reasoned judgments concerning their set up, operation and adjustment, and to understand and apply work instructions; spatial perception to visualize, from specifications, proper installation and adjustment of gears, cutting and scoring dies, plungers, rollers and guides; form perception to discern irregularities and imperfections in the size and shape of paper products such as bags and cartons; eye-hand-finger co-ordination to rapidly and accurately set up, operate and adjust machines and manipulate hand tools; finger dexterity to rapidly and accurately manipulate small switches, controls, and hand tools; manual dexterity to easily and skilfully install, remove and assemble machine components and paper articles; capacity to perform medium work, requiring frequent lifting and carrying of objects weighing up to twenty pounds, with occasional lifting of objects up to fifty pounds; near visual acuity to make close inspection of paper products and machine mechanisms; adaptability to working in a noisy environment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight years to ten years of general education; three months to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in this chapter may, with additional training, advance to occupations requiring higher skills within their individual cluster or in other clusters within the chapter. Experienced workers may also advance to quality-control occupations such as 8596-208 INSPECTOR, PAPER PRODUCTS. Those with supervisory potential may also advance to 8590-126 FOREMAN, PAPER PRODUCT FABRICATING AND ASSEMBLING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within the chapter, or with limited additional training, to appropriate occupations in Chapter 8599B, OTHER PRODUCT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, N.E.C., for example, 8599-790 SLITTING-MACHINE OPERATOR; 8599-794 CUTTER OPERATOR; 8599-798 DIE-CUTTING-MACHINE OPERATOR; 8599-802 CUTTER, MACHINE; 8599-806 TUBE-CUTTING-MACHINE TENDER; and 8599-810 SLITTING-MACHINE-OPERATOR HELPER.

OCCUPATIONAL TITLES:

8593-118	CORRUGATOR OPERATOR
8593-130	PARTITION-ASSEMBLY-MACHINE OPERATOR
8593-134	CREPING-MACHINE OPERATOR
8593-142	CARTON-FORMING-MACHINE OPERATOR
8593-146	SLITTER-CREASER OPERATOR
8593-150	ENVELOPE-FLAT-CUTTING-MACHINE SET-UP MAN
8593-154	TUBE-WINDING-MACHINE OPERATOR
8593-158	AUTOMATIC-PAPER-CUTTING-MACHINE OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	4	3	4	3	4	5	L-M47	I-5	3	6-3	91	YO
	4				4		4			5							

8593-D PAPER PRODUCT FABRICATING AND ASSEMBLING OCCUPATIONS 665, 685

WORK PERFORMED: This chapter includes occupations concerned with fabricating and assembling paper products such as bags, cartons, boxes, liners and envelopes. Worker functions include: setting up and maintaining bag, envelope and other paper products making machines; operating, tending or feeding machines that cut, slot, crease or form paper into various articles; comparing dimensions and quality of finished products to specified standards; manipulating paper parts and stapling guns, glue applicators and other work aids to fabricate and assemble articles by hand; compiling data from work orders to determine product specifications and amounts of materials needed; handling materials and supplies. Work activities include: installing and adjusting guides, rollers, knives and other components in machines; placing or threading materials into machines; moving controls to start, stop and regulate equipment; and examining completed products for defects.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to follow uninvolved instructions, perform simple machine tending and feeding procedures and assist machine operators; form perception to examine products for imperfections; eye-hand-finger co-ordination to rapidly and accurately adjust or assist with the adjustment of malfunctioning machines and to arrange paper products; manual dexterity to move the hands easily and skilfully when feeding machines and using hand tools; capacity to perform light to medium work, requiring frequent lifting and carrying of objects weighing up to fifty pounds; the ability to stoop, kneel and crouch while feeding machines and lifting items; adaptability to working in a noisy environment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight years of general education; one week to three months of on-the-job training; for 8593-138 SAMPLE-CONTAINER MAKER, HAND from six months to two years of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: Workers in this chapter may, with additional training, advance to occupations requiring higher skills within their individual cluster or in other clusters within the chapter. Experienced workers may also advance to quality-control occupations such as 8596-208 INSPECTOR, PAPER PRODUCTS. Those with supervisory potential may also advance to 8590-126 FOREMAN, PAPER PRODUCT FABRICATING AND ASSEMBLING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations requiring similar skills within the chapter, or with limited additional training, to appropriate occupations in Chapter 8599B, OTHER PRODUCT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, N.E.C., for example, 8599-790 SLITTING-MACHINE OPERATOR; 8599-794 CUTTER OPERATOR; 8599-798 DIE-CUTTING-MACHINE OPERATOR; 8599-802 CUTTER, MACHINE; 8599-806 TUBE-CUTTING-MACHINE TENDER; and 8599-810 SLITTING-MACHINE-OPERATOR HELPER.

OCCUPATIONAL TITLES:

8593-170 BAG-MAKING-MACHINE TENDER
8593-174 PAPER-BOX-MACHINE TENDER
8593-178 CORE MAN
8593-182 FOLDING-MACHINE TENDER
8593-186 PAPER-TWISTER TENDER
8593-190 SCORER
8593-194 TAG-MACHINE TENDER
8593-218 AUTOMATIC-TUBE-MACHINE TENDER
8593-226 BOOK-COVER CREASER
8593-230 BOOK-JACKET-COVER-MACHINE TENDER
8593-234 BOX FINISHER
8593-238 BUTTON-ENVELOPE-MACHINE TENDER
8593-242 CARBOARD-LINING-MACHINE TENDER
8593-246 COLOUR-CARD MAKER MACHINE
8593-250 COMB-CUTTING-MACHINE TENDER
8593-254 DRILL-PUNCH TENDER
8593-258 ENVELOPE-MACHINE TENDER
8593-262 MATCH-BOOK-MACHINE TENDER
8593-266 MILK-BOTTLE-CAP-MAKING MACHINE TENDER
8593-270 PAD GLUER, MACHINE
8593-274 PAPER-BAG-MACHINE TENDER
8593-278 PAPER-CUP-MACHINE TENDER
8593-282 PARTITION-SLOTTER-MACHINE TENDER
8593-286 ROLLING-MACHINE TENDER
8593-290 ROLL-SLICING-MACHINE TENDER
8593-294 SEALING-MACHINE TENDER
8593-298 STAYER-MACHINE TENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	$\underline{4}$	5	$\underline{4}$	4	$\underline{3}$	5	5	L-M4	I5	2	3-2	319	23Y
			5			4			$\underline{4}$	4							

8595-A PAINTING AND DECORATING OCCUPATIONS, EXCEPT CONSTRUCTION 661, 681

WORK PERFORMED: This chapter includes occupations concerned with preparing surfaces and applying decorative or protective coatings to a variety of manufactured products, machines and equipment; and dipping, coating, polishing and baking articles. Worker functions include: setting up, operating or tending equipment such as tumbling barrels, dipping tanks, bake ovens, coating machines and electrostatic sprayers; manipulating hand tools, brushes and spray guns to prepare surfaces and to paint, stain or decorate articles; working precisely to provide a high degree of quality when finished appearance is important; comparing colour and finish of completed work to established standards; and handling supplies, work aids and equipment. Work activities include: sanding, scraping, smoothing, cleaning and masking surfaces preparatory to painting; mixing coating materials to specifications; laying out lettering and designs for vehicles, signs or for artistic or ornamental effect; installing and adjusting guides, nozzles and other components in machines; moving controls to start, stop and regulate spraying equipment; loading and unloading parts and materials onto and from conveyors; and polishing and buffing stained or painted articles to bring out lustre.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the properties of paint, lacquer and related finishes, and to know the correct proportions and proper techniques for mixing, blending and applying paints or finishes to metal, wood or other materials; form perception to ensure smoothness of finish and to discern surface imperfections; eye-hand co-ordination to rapidly and accurately manipulate hand brushes or spray guns to paint surfaces evenly and smoothly; finger dexterity to use precise and agile finger movements when painting lettering or designs on plastic and neon signs, or painting wood trim on furniture; manual dexterity to use blow torches, sanding machines, scrapers, screwdrivers and other hand and power tools to disassemble furniture or prepare surface for painting; colour discrimination to a high degree, to mix paints to obtain desired colour, or to match exact shade of original colour; physical capacity to stoop, kneel or crouch and to perform work requiring medium strength; near visual acuity to avoid errors when reading formulas or specifications; adaptability to working in the presence of fumes, odors or dusts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; three months to two years of on-the-job training, depending on the occupation; for 8595-118 PAINTER, SHIPYARD, in some provinces a three to four-year apprenticeship program, which may be provincially regulated.

ADVANCEMENT POSSIBILITIES: With additional training, some workers may advance to occupations requiring higher skills within their individual cluster, or to other clusters within this chapter. Those with supervisory potential may advance to 8590-122 FOREMAN, PAINTING AND DECORATING OCCUPATIONS, EXCEPT CONSTRUCTION. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar skills within this chapter.

OCCUPATIONAL TITLES:

8595-110	FURNITURE FINISHER
8595-114	PAINTER
8595-118	PAINTER, SHIPYARD
8595-122	SPRAYER PAINTER, SIGNS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	3	3	4	2	L-M347	I-B7	4-3	6-5	190	YO
				4	2					5	3						

8595-C PAINTING AND DECORATING OCCUPATIONS, EXCEPT CONSTRUCTION

664, 684

WORK PERFORMED: This chapter includes occupations concerned with preparing surfaces and applying decorative or protective coatings to a variety of manufactured products, machines and equipment; and dipping, coating, polishing and baking articles. Worker functions include: setting up, operating or tending equipment such as tumbling barrels, dipping tanks, bake ovens, coating machines and electrostatic sprayers; manipulating hand tools, brushes and spray guns to prepare surfaces and to paint, stain or decorate articles; working precisely to provide a high degree of quality when finished appearance is important; comparing colour and finish of completed work to established standards; and handling supplies, work aids and equipment. Work activities include: sanding, scraping, smoothing, cleaning and masking surfaces preparatory to painting; mixing coating materials to specifications; laying out lettering and designs for vehicles, signs or for artistic or ornamental effect; installing and adjusting guides, nozzles and other components in machines; moving controls to start, stop and regulate spraying equipment; loading and unloading parts and materials onto and from conveyors; and polishing and buffing stained or painted articles to bring out lustre.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and follow instructions and procedures related to preparing surfaces, mixing paints and applying decorative or protective coatings; spatial perception to achieve proper spacing, balance and artistic effect when laying out and painting letters or designs; form perception to detect runs, streaks, spots or other painting irregularities; eye-hand co-ordination to use hand brushes or spray guns to paint a variety of articles; finger dexterity to make precise and nimble finger movement when painting glassware, pottery, mirrors, lamps or jewellery; manual dexterity to skilfully use hand and power tools to prepare surfaces for painting; colour discrimination to select and match colours according to specifications; physical capacity to perform light to medium work, and to reach for and handle a variety of objects; agility to stoop, kneel or crouch; near visual acuity to do fine hard work and touch-up work when decorating articles or repairing defects in finish; adaptability to health hazards such as fumes, odors and dusts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, some workers may advance to occupations requiring higher skills within their individual cluster, or to other clusters within this chpater. Those with supervisory potential may advance to 8590-122 FOREMAN, PAINTING AND DECORATING OCCUPATIONS, EXCEPT CONSTRUCTION. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar skills within this chapter.

OCCUPATIONAL TITLES:

8595-126	SPRAY PAINTER, FINISH, LARGE	8595-162	FRAME-MOULDING FINISHER
8595-130	CAR PAINTER AND LETTERER	8595-166	GILDER, METAL-LEAF
8595-134	DECORATOR	8595-170	PAINTER, AIRBRUSH
8595-138	ENAMELLER, HAND	8595-174	TOUCH-UP PAINTER
8595-142	SPRAY PAINTER, FINISH, SMALL	8595-310	MANNEQUIN FINISHER
8595-146	FINISH-TOUCH-UP MAN	8595-182	SPRAY PAINTER, ROUGH
8595-306	RUBBER	8595-186	SPRAY PAINTER, ROUGH, BENCHWORK
8595-150	STAINER	8595-190	DECAL APPLIER
8595-154	STAINER, SMOKING-PIPE	8595-194	PAINTER, MOTOR AND GENERATOR SUN SUBASSEMBLIES
8595-158	BANDER, HAND		
		8595-198	UNDERCOATER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	3	4	3	3	3	5	3	L-M347	I7	3-2	5-2	139	Y09
	3		5	3	4	5		4	4		4						Y02

8595-E PAINTING AND DECORATING OCCUPATIONS, EXCEPT CONSTRUCTION 684, 687

WORK PERFORMED: This chapter includes occupations concerned with preparing surfaces and applying decorative or protective coatings to a variety of manufactured products, machines and equipment; and dipping, coating, polishing and baking articles. Worker functions include: setting up, operating or tending equipment such as tumbling barrels, dipping tanks, bake ovens, coating machines and electrostatic sprayers; manipulating hand tools, brushes and spray guns to prepare surfaces and to paint, stain or decorate articles; working precisely to provide a high degree of quality when finished appearance is important; comparing colour and finish of completed work to established standards; and handling supplies, work aids and equipment. Work activities include: sanding, scraping, smoothing, cleaning and masking surfaces preparatory to painting; mixing coating materials to specifications; laying out lettering and designs for vehicles, signs or for artistic or ornamental effect; installing and adjusting guides, nozzles and other components in machines; moving controls to start, stop and regulate spraying equipment; loading and unloading parts and materials onto and from conveyors; and polishing and buffing stained or painted articles to bring out lustre.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and follow instructions concerning the tending of automatic paint spraying, coating and drying machines, and for workers in Cluster E to understand simple instructions concerning mixing of paints or preparing surfaces for painting and performing routine painting; form perception to observe application of surface coatings for proper thickness, smoothness and quality or for imperfections; eye-hand co-ordination to manipulate controls of automatic machines and to clean and smooth surfaces to be painted; manual dexterity to mix paints, to install or adjust nozzles on spray guns and to erect ladders and scaffolding; capacity to perform work requiring medium strength; capacity to climb, stoop, kneel and crouch; adaptability to working in constant presence of fumes from paint and dust from spraying or refinishing work.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, some workers may advance to occupations requiring higher skills within their individual cluster, or to other clusters within this chapter. Those with supervisory potential may advance to 8590-122 FOREMAN, PAINTING AND DECORATING OCCUPATIONS, EXCEPT CONSTRUCTION. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar skills within this chapter.

OCCUPATIONAL TITLES:

8595-178	PAINTER HELPER, SHIPYARD
8595-314	PAINTER HELPER
8595-202	CRESTER
8595-206	PAINTER, BRUSH
8595-322	SPRAY-PAINTER HELPER
8595-326	CAR SCRUBBER
8595-330	MASKER
8595-334	STRIPPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	4	4	L-M234	I-7	2	3-2	31	23
			5			4				5	5						

8598 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK: PRODUCTS FABRICATING, ASSEMBLING AND REPAIRING, N.E.C.

686, 687, 887

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with labouring or other elemental work in the fabrication, assembly and repair of a variety of products made from various types of materials. The primary worker function is handling hand tools, powered tools, scrapers, brushes, spray guns, hand trucks or machine controls to perform routine tasks. Work activities include: assembling and finishing small mechanical, electrical or miscellaneous products by bolting, screwing, soldering, gluing, riveting or pressing; cleaning metal articles using brushes, sandpaper and scraping tools; and dipping, brushing or spraying articles to form protective or decorative coatings.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow simple work instructions to perform a variety of uncomplicated tasks; eye-hand-finger co-ordination for activities such as positioning parts in specified relationship to each other before assembly; manual dexterity and the capacity to extend the hands in order to feel and handle parts, materials, tools and other items; sufficient strength to perform work ranging from light to medium, requiring the lifting, carrying or handling of parts, tools, materials or products; the pushing of hand trucks; or the cleaning of work areas, equipment or products; near-visual acuity to perform such tasks as positioning and aligning parts for assembly and examining items for defects; capacity to work in the proximity to

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: no specified educational level; on-the-job training ranging from a short demonstration to one month.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs and advancement is normally to more highly skilled occupations in Minor Group 859, OTHER PRODUCT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS for workers who demonstrate ability, interest and initiative.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar skills within the chapter or to occupations in labouring and elemental work found in other chapters.

OCCUPATIONAL TITLES:

8598-110 GLUER
8598-114 LABOURER GENERAL, ASSEMBLY LINE
8598-118 ASSEMBLER, PENS & PENCILS
8598-122 KNIFE ASSEMBLER, HOLLOW HANDLE
8598-126 ASSEMBLER, SPECIALITY BRUSH & MOP
8598-130 CURTAIN-ROD ASSEMBLER
8598-134 FILTER ASSEMBLER
8598-138 FOLDER-CEMENTER, SLIDE-FASTENERS
8598-142 JEWELLERY-PARTS ASSEMBLER
8598-146 LAMP-SHADE JOINER
8598-150 NECKLACE ASSEMBLER
8598-154 PAINT-ROLLER WINDER
8598-158 SLIDE-FASTENER-CHAIN ASSEMBLER
8598-162 VACUUM-BOTTLE ASSEMBLER
8598-182 BARREL LINER, HAND
8598-186 CLEANER, PORCELAIN-ENAMEL
8598-190 LABOURER, CANDLE
8598-194 LABOURER, DIPPING
8598-198 PAPER-CONE DIPPER-&-DRYER
8598-202 PICKLER & DIPPER
8598-206 MIRROR COATER
8598-210 SPRAY-BOOTH CLEANER
8598-230 CRAYON CUTTER
8598-234 SLIDE-FASTENER REPAIRER
8598-238 TRIMMER, BROOM
8598-242 TRIMMER, PAPER-DOILIES
8598-246 WALLPAPER PREPARER
8598-266 BAGGING-MACHINE FEEDER
8598-270 CRÊPING-MACHINE-OPERATOR HELPER
8598-274 PAD GLUER, HAND
8598-278 PENCIL-BLANK PRESSER
8598-282 PREPARER, CORN BROOM MATERIAL
8598-286 TRUNK COVERER
8528-114T WEDGER, MACHINE
8598-306 CLIP-LOADING-MACHINE FEEDER
8598-310 SILVERING-MACHINE FEEDER
8598-314 BANDOLEER STRAIGHTENER-STAMPER
8598-318 DECAL SELECTOR-APPLIER
8598-322 ORNAMENTAL-STONE SETTER
8598-326 STAMP FILLER
8528-110T TINWARE WORKER
8598-330 LABOURER, SHIPYARD
8598-334 PAINT-BRUSH BONDER
8598-338 RACKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	5	5	4	4	5	4	4	4	5	5	L-M47	I5	2-1	2-1	13	23
		4							3	4							

8599A-A MUSICAL INSTRUMENT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, N.E.C.

261, 281, 381, 681

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with fabricating, assembling and repairing musical instruments such as pianos, pipe organs, wind instruments and guitars. Worker functions include: analyzing and compiling information from specifications and drawings or from examination of instruments to determine appropriate materials and procedures; working to precise tolerances when laying out, machining, fitting and joining parts; manipulating hand and power tools; and comparing appearance and performance of completed instruments with required standards. Work activities include: dismantling, restringing, tuning, painting, reassembling, testing and tuning musical instruments; making piano bass-strings; and rehairing string-instrument bows.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to acquire a thorough knowledge of the procedures and techniques required to fabricate, assemble and repair musical instruments; form perception to visually examine instruments for physical defects such as worn and broken parts, warps or splits; eye-hand-finger co-ordination and manual dexterity to use hand and power tools or to manually fit and assemble musical instruments; finger dexterity to move the fingers accurately and with agility when tuning or playing instruments, or when manipulating small parts and tools; physical capacity to lift and carry instruments and parts weighing up to one hundred pounds and to reach for and handle a variety of tools and materials; ability to make fine discriminations of tonal qualitites when tuning or testing instruments; adaptability to working in proximity to loud or high-pitched sounds of musical instruments and to the noise generated by power tools and machinery; numerical ability to accurately determine dimensions when fabricating, repairing, rebuilding or restoring instruments; spatial perception to visualize shape and appearance of finished instruments from two-dimensional layouts or design specifications; capacity to stoop, kneel or crouch to work on lower sections of harpsichords, pianos or pipe organs; near visual acuity to prepare layouts, or to do fine hand and touch-up work.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; one to four years or more of on-the-job training and related experience depending on the occupation.

ADVANCEMENT POSSIBILITIES: Because of the high degree of specialization, advancement possibilities for workers in the musical instrument industry are limited. However, some workers may, with limited additional training, advance to other occupations within their own cluster. Workers with supervisory potential may become foremen of other workers in this field.

TRANSFER POSSIBILITIES: Possibilities for transfer are also limited, but some workers may transfer to occupations requiring similar basic skills within their individual cluster or to appropriate occupations in Chapter 8339, METAL SHAPING AND FORMING OCCUPATIONS, EXCEPT MACHINING, N.E.C., or Minor Group 854, FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, WOOD PRODUCTS.

OCCUPATIONAL TITLES:

8599-214	HARPSICHORD BUILDER
8599-218	MUSICAL-INSTRUMENT REPAIRMAN
8549-222T	STRINGED -INSTRUMENT MAKER
8599-222	PIPE-ORGAN TUNER AND REPAIRMAN
8599-226	ACCORDION REPAIRMAN
8599-230	PIANO REPAIRMAN
8599-234	PIPE-ORGAN BUILDER
8549-226T	STRINGED-INSTRUMENT REPAIRMAN
8599-238	WIND-INSTRUMENT REPAIRMAN
8599-242	ORGAN-PIPE VOICER
8599-246	PIPE-ORGAN ERECTOR
8599-250	PIANO-TONE REGULATOR
8599-258	PERCUSSION-INSTRUMENT REPAIRMAN
8599-262	PIANO-ACTION REGULATOR
8599-266	PIANO-BACK ASSEMBLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	5	3	3	3	5	5	M-H3467	I5	4-3	8-5	190	OY9
			3	4	4	4		4	2	4							
				2													

8599A-B MUSICAL INSTRUMENT FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, N.E.C.

682, 684

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with fabricating, assembling and repairing musical instruments such as pianos, pipe organs, wind instruments and guitars. Worker functions include: analyzing and compiling information from specifications and drawings or from examination of instruments to determine appropriate materials and procedures; working to precise tolerances when laying out, machining, fitting and joining parts; manipulating hand and power tools; and comparing appearance and performance of completed instruments with required standards. Work activities include: dismantling, restringing, tuning, painting, reassembling, testing and tuning musical instruments; making piano bass-strings; and rehairing string-instrument bows.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to acquire a thorough knowledge of the procedures and techniques required to fabricate, assemble and repair musical instruments; form perception to visually examine instruments for physical defects such as worn and broken parts, warps or splits; eye-hand-finger co-ordination and manual dexterity to use hand and power tools or to manually fit and assemble musical instruments; finger dexterity to move the fingers accurately and with agility when tuning or playing instruments, or when manipulating small parts and tools; physical capacity to lift and carry instruments and parts weighing up to one hundred pounds and to reach for and handle a variety of tools and materials; ability to make fine discriminations of tonal qualities when tuning or testing instruments; adaptability to working in proximity to loud or high-pitched sounds of musical instruments and to the noise generated by power tools and machinery.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: seven to nine years of general education; up to six months of on-the-job training; blind persons, trained by the Canadian National Institute for the Blind, may find employment as 8599-272 PIANO TUNER.

ADVANCEMENT POSSIBILITIES: Because of the high degree of specialization, advancement possibilities for workers in the musical instrument industry are limited. However, some workers may, with limited additional training, advance to other occupations within their own cluster, or from Cluster B to A. Workers with supervisory potential may become foremen of other workers in this field.

TRANSFER POSSIBILITIES: Possibilities for transfer are also limited, but some workers may transfer to occupations requiring similar basic skills within their individual cluster or to appropriate occupations in Chapter 8339, METAL SHAPING AND FORMING OCCUPATIONS, EXCEPT MACHINING, N.E.C., or Minor Group 854, FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, WOOD PRODUCTS.

OCCUPATIONAL TITLES:

8599-270	PIANO SUBASSEMBLER
8599-272	PIANO TUNER
8599-274	BASS-STRING WINDER
8599-278	ROUGH TUNER
8599-282	BOW REHAIRER
8599-286	PIANO STRINGER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	$\underline{4}$	5	$\underline{4}$	$\underline{4}$	$\underline{3}$	5	5	L-M46	I-5	3-2	4	193	2Y9
	3		5			4	$\underline{3}$		$\underline{4}$								

8711-A EXCAVATING, GRADING AND RELATED OCCUPATIONS 363, 663, 665, 683

WORK PERFORMED: This chapter includes occupations concerned with removing earth materials from excavations, filling, grading and levelling for roadbuilding and other construction work, and dredging irrigation ditches, canals and marine channels. Worker functions includes: driving and operating heavy construction machinery to excavate, move, load or grade earth and similar material; manipulating air hammers and hand tools to break up material or shape walls and bottom of trenches; handling sections of pipe, tow lines, foundation timbers and construction tools; comparing levels of fill, grades, and depths of excavation to marking guides on anchor poles or stakes. Work activities include: actuating levers, pedals and other controls to manoeuvre construction machinery and equipment; drilling post holes, or shallow wells for water; boring horizontal holes in the earth or under highways, canals or other obstructions to lay pipes; installing and removing lengths of pipe; driving stakes in ground and setting up trim lines or templates to indicate grade or level; and providing support to operators of construction machinery.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the techniques of excavating, grading and dredging earth materials, and to acquire considerable skill to operate bulldozers, dredges, power shovels, or other heavy construction equipment; spatial perception to interpret drawings or specifications and to manoeuvre construction equipment to avoid other moving or stationery objects; eye-hand co-ordination and manual dexterity to connect hoses and belts, adjust, repair and replace parts, and clean, lubricate and refuel equipment; eye-hand-foot co-operation to simultaneously actuate hand levers, foot pedals and steering devices; capacity to recognize sounds of machinery which may indicate faulty operation, and to hear instructions and warnings, visual acuity, near and far, and depth perception to read gauges on instrument panel and to manipulate mobile equipment safely at work sites; adaptability to dusts from sand and gravel and fumes from diesel engines; physical capacity to perform medium to very heavy work and to reach for and handle a variety of tools and equipment; adaptability to working in wind, rain or snow and in proximity to noisy construction equipment; adaptability to hazardous situations such as working in well holes or deep trenches and operating mobile equipment on rough or irregular terrain.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to nine years of general education; one to six months of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: With additional training, workers may advance to occupations requiring higher skills within the cluster. Experienced workers with supervisory potential may also advance to 8710-110 FOREMAN, EXCAVATING, GRADING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: With limited additional training, experienced workers in this chapter may transfer to other occupations requiring similar basic skills within the chapter or to appropriate occupations in other chapters such as 7717, MINING AND QUARRYING: CUTTING, HANDLING AND LOADING OCCUPATIONS; and 8713, PAVING, SURFACING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8711-110 HEAVY-EQUIPMENT OPERATOR
8711-114 SHIELD RUNNER
8711-118 HORIZONTAL-EARTH-BORING-MACHINE OPERATOR
8711-122 MUCKING-MACHINE OPERATOR
8711-126 BULLDOZER OPERATOR
8711-130 DRAGLINE OPERATOR
8711-134 DREDGE OPERATOR
8711-138 ELEVATING-SCRAPER OPERATOR
8711-142 POWER-SHOVEL OPERATOR
8711-146 ROAD-GRADER OPERATOR
8711-150 SCRAPER OPERATOR
8711-154 TOWER-EXCAVATOR OPERATOR
8711-158 TRENCH-DIGGING-MACHINE OPERATOR
8711-162 UTILITY-TRACTOR OPERATOR
8711-166 AIR-LOCK TENDER
8711-174 LOADER OPERATOR
8711-178 POST-HOLE DRILLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	4	5	3	4	3	3	5	M467	0567	3	6-3	913	Y2
	4		5				4										

8713-A PAVING, SURFACING AND RELATED OCCUPATIONS 663, 683

WORK PERFORMED: This chapter includes occupations concerned with laying concrete to form road-beds or sub-surface structures for roads, highways, streets, sidewalks, airports and parking lots, and applying asphalt, gravel, concrete and other surfacing materials. Worker functions include: driving, operating and tending construction machines to spread, level, compact and smooth surfacing materials, mix and pour concrete, and spray tar, asphalt, road oils and emulsions on roads and highways; comparing depth, grade, level and smoothness of surfaced areas to specified standards; and manipulating construction tools, metal road and curbing forms, wire mesh and other materials and equipment. Work activities include: selecting and fitting appropriate attachments to surfacing machines; refueling, cleaning and servicing equipment; laying wire mesh to reinforce concrete; placing and spreading asphalt by hand; and covering earthen surfaces with stones to prevent soil erosion.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand paving techniques and the characteristics of surfacing materials and to acquire considerable skill needed to operate large road-surfacing machines; spatial perception to determine the relative position of other moving or stationary objects in order to avoid accidents; eye-hand-finger co-ordination to connect supply hoses, move levers and turn handwheels or to refuel machines; manual dexterity to skilfully use hand tools to clean, service or repair machines and attachments; eye-hand-foot co-ordination to simultaneously operate levers, pedals and steering devices; visual acuity, near and far, depth perception to steer and accurately position large road-surfacing equipment; physical capacity to perform medium to heavy work to handle a variety of objects such as tools wheelbarrows, shovels, water hoses, concrete pipe and pneumatic drills; adaptability to work situations involving exposure to extreme weather conditions such as rain, snow and wind, and to considerable noise from road-surfacing machinery, jackhammers or power-assisted-walking equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one month to one year of on-the-job training and related experience, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: With additional training workers in this chapter may advance to other occupations within the chapter. Experienced workers with supervisory potential may also advance to 8710-114 FOREMAN, PAVING, SURFACING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations within the chapter, or with limited additional training, to appropriate occupations requiring similar basic skills in Minor Group 878/879, OTHER CONSTRUCTION TRADES OCCUPATIONS.

OCCUPATIONAL TITLES:

8713-110	CONCRETE-PAVING-MACHINE OPERATOR
8713-114	ASPHALT-PAVING-MACHINE OPERATOR
8713-118	CONCRETE-MIXER-OPERATOR, HIGHWAY
8713-122	MOBILE-TAMPER OPERATOR
8713-126	ROAD-ROLLER OPERATOR
8713-130	SOIL-STABILIZING-MACHINE OPERATOR
8713-134	ROAD-PLANER OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3 4	4	5	3	4	5	3	4	3	3	5	M-47	0-5	3	5-3	913	2Y 23Y

8713-C PAVING, SURFACING AND RELATED OCCUPATIONS 665, 683

WORK PERFORMED: This chapter includes occupations concerned with laying concrete to form road-beds or sub-surface structures for roads, highways, streets, sidewalks, airports and parking lots, and applying asphalt, gravel, concrete and other surfacing materials. Worker functions include: driving, operating, and tending construction machines to spread, level, compact and smooth surfacing materials, mix and pour concrete, and spray tar, asphalt, road oils and emulsions on roads and highways; comparing depth, grade, level and smoothness of surfaced areas to specified standards; and manipulating construction tools, metal road and curbing forms, wire mesh and other materials and equipment. Work activtities include: selecting and fitting appropriate attachments to surfacing machines; refueling, cleaning and servicing equipment; laying wire mesh to reinforce concrete; placing and spreading asphalt by hand; and covering earthen surfaces with stones to prevent soil erosion.

APTITUDES AND CAPACITIES: learning ability to understand and follow road-surfacing equipment operating or tending procedures; eye-hand co-ordination to guide machines over joints, cracks or surfaces, to start motors and move levers and to position stones on slopes or terrace to prevent soil erosion; manual dexterity to use hand tools to prepare equipment, make minor repairs, or clean and lubricate machines; visual acuity, near and far, and depth perception to accurately guide machines or monitor gauges and instruments; adaptability to fumes and odours from tar, asphalt and road oils and dusts from sand and gravel;physical capacity to perform medium to heavy work to handle a variety of objects such as tools, wheelbarrows, shovels, water hoses, concrete pipe and pneumatic drills; adaptability to work situations involving exposure to extreme weather conditions such as rain, snow and wind, and to considerable noise from road-surfacing machinery, jackhammers or power-assisted-walking equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one month to one year of on-the-job training and related experience, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: With additional training workers in this chapter may advance to other occupations within the chapter. Experienced workers with supervisory potential may also advance to 8710-114 FOREMAN, PAVING, SURFACING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations within the chapter, or with limited additional training, to appropriate occupations requiring similar basic skills in Minor Group 878/879, OTHER CONSTRUCTION TRADES OCCUPATIONS.

OCCUPATIONAL TITLES:

8713-142	CONCRETE-GROOVING-MACHINE OPERATOR
8713-150	POWER-CURBER TENDER
8713-154	ROLLER-COMPACTOR OPERATOR
8713-158	TAMPER OPERATOR
8713-170	ROAD-SPRAY-TRUCK TENDER
8713-174	STONE-SPREADER TENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3 4	4	5	M-47	O-57	2	3-2	931	23Y

8715-A RAILWAY SECTIONMEN AND TRACKMEN

682, 683

WORK PERFORMED: This chapter includes occupations concerned with laying, aligning, inspecting and repairing tracks and road-beds of subways, and street, mine, industrial and regular railways. Worker functions include: driving and operating machines such as ballast regulators, tampers, snow blowers and ballast cleaners; manipulating and handling equipment and tools and special devices to work, move and place materials such as rails, ballast and ties; and comparing results of maintenance or repair activities to specified standards. Work activities include: moving levers and depressing pedals to start, stop and control the movement of self-propelled machines or vehicles; laying and repairing track; repairing railway-track switches and grinding switch points and frogs to ensure smooth and safe operation of rolling stock; patrolling and inspecting designated area of railroad track; and servicing and maintaining mechanical rail-lubricators and railroad-switch lamps.

APTITUDES AND CAPACITIES: Workers in this Chapter require: learning ability to understand procedures and follow instructions relating to the operation of specialized track and roadbed construction and maintenance equipment; spatial perception to judge distances and relative positions when driving self-propelled vehicles or machines or to visualize adjustments required during actual operations; eye-hand co-ordination and manual dexterity to move controls rapidly and accurately and use hand tools; eye-hand-foot co-ordination to operate equipment equipped with levers and pedals; strength to perform light to medium work often involving considerable physical exertion on hand and foot controls; visual acuity both near and far and depth perception to observe track or roadbed instruments when operating machines; adaptability to working outside where there may be little protection from extremes of temperature; adaptability to conditions in which there is exposure to noise and vibration, either constant or intermittent, posing a possible risk of injury to sense of hearing.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: seven to ten years of general education; one month to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to higher skilled occupations within the chapter. Those with supervisory potential may advance to 8710-118 FOREMAN, RAILWAY SECTIONMEN AND TRACKMEN. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to occupations requiring similar basic skills within the chapter, or to other occupations in excavating and grading work.

OCCUPATIONAL TITLES:

8715-110	BALLAST-REGULATOR OPERATOR
8715-114	TAMPER-ALIGNER OPERATOR
8715-118	RAILWAY-TRACK-TAMPER OPERATOR
8715-122	TRACK-MOVING-MACHINE OPERATOR
8715-130	BALLAST-CLEANING-MACHINE OPERATOR
8715-134	SNOW-BLOWER OPERATOR
8715-138	TRACK-BROOM OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	5	$\dfrac{3}{\underline{4}}$	4	5	$\underline{3}$	4	$\underline{3}$	$\dfrac{3}{4}$	5	L-M47	I-05	3	5-3	913	2Y

8715-B RAILWAY SECTIONMEN AND TRACKMEN 684, 687

WORK PERFORMED: This chapter includes occupations concerned with laying, aligning, inspecting and repairing tracks and roadbeds of subways, and street, mine, industrial and regular railways. Worker functions include: driving and operating machines such as ballast regulators, tampers, snow blowers and ballast cleaners; manipulating and handling equipment and tools and special devices to work, move and place materials such as rails, ballast and ties; and comparing results of maintenance or repair activities to specified standards. Work activities include: moving levers and depressing pedals to start, stop and control the movement of self-propelled machines or vehicles; laying and repairing track; repairing railway-track switches and grinding switch points and frogs to ensure smooth and safe operation of rolling stock; patrolling and inspecting designated area of railroad track; and servicing and maintaining mechanical rail-lubricators and railroad-switch lamps.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand detailed but uninvolved instructions and to apply them while performing a variety of tasks; eye-hand co-ordination and manual dexterity to operate controls on portable equipment and to use hand tools, power tools and special work aids; strength to perform medium to very heavy work requiring the lifting of objects weighing in excess of one hundred pounds and the use of spike pullers, shovels and sledge hammers; capacity to stop, kneel or crouch when repairing, positioning or grinding railway tracks and switches; near visual acuity and good depth perception when inspecting track or operating rail-grinding machines; adaptability to constant or intermittent noises; adaptability to working outside where there is little or no protection from extremes of temperature.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: seven to ten years of general education; one month to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers in this chapter may advance to higher skilled occupations within the chapter. Those with supervisory potential may advance to 8710-118 FOREMAN, RAILWAY SECTIONMEN AND TRACKMEN. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to occupations requiring similar basic skills within the chapter, or to other occupations in excavating and grading work.

OCCUPATIONAL TITLES:

8715-126	SWITCH REPAIRMAN
8715-142	TRACK REPAIRMAN
8715-146	RAILWAY-TRACK GRINER
8715-154	RAIL-LUBRICATOR REPAIRMAN
8715-158	LAMP TRIMMER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	4	5	M-VH347	0	3-2	4-2	193	2Y
							3		4								2Y3

8718 OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK: EXCAVATING, GRADING AND PAVING 667, 867, 887

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in excavating and grading earth materials, and in paving, surfacing and related activities. The primary worker function is: handling materials, tools and implements such as shovels, rakes, brooms, tampers and hammers to perform routine manual tasks. Work activities include: sweeping pavement base preparatory to laying asphalt surface; hand tamping freshly-laid ashpalt in places inaccessable to road roller; clearing brush, rocks and other foreign material at work site; shovelling excavated material onto conveyor or truck for removal from site; directing traffic around construction work; shovelling muck from discharge end of dredge pipes; and assisting other construction workers in the performance of their duties.

APTITUDES AND CAPACITIES: learning ability to understand and apply instructions given by foremen and excavating, grading and paving machines operators; manual dexterity to move hands and arms freely when working with shovels, rakes and scrapers in spreading asphalt and concrete; eye-hand-foot co-ordination in assisting in placing and operating pneumatic hammers when setting sheet piling around excavation sites; strength to perform heavy work requiring the lifting of a maximum of one hundred pounds and the requent lifting, moving or carrying of objects weighing up to fifty pounds; capacity to ascend or descend ladders, scaffolding or ramps while maintaining balance to prevent falling or slipping; capacity to stoop, kneel or crouch when working in excavations, clearing surfaces or clearing discharge ends of dredge pipes; good hearing to receive information through oral communication or to detect sounds such as sirens, whistles or claxons; adaptability to working outside in conditions where there is usually little protection against extremes of climate; adaptability to constant or intermittent noise sufficient to cause possible injury to the sense of hearing; adaptability to hazardous conditions such as cave-ins where there is risk of bodily injury or possible death; adaptability to atmospheric conditions such as dust, smoke and odours.

TRAINING AND ENTRY REQUIREMENTS: six years of general education; on-the-job training ranging from a short demonstration to one month.

ADVANCEMENT POSSIBILITIES: With additional training, some workers may advance to appropriate occupations in Chapter 8711, EXCAVATING, GRADING AND RELATED OCCUPATIONS.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar basic skills withint this chapter, or to occupations in labouring and elemental work in other chapters.

OCCUPATIONAL TITLES:

8718-110	LABOURER, BITUMINOUR PAVING
8718-114	LABOURER, CONCRETE PAVING
8718-118	LABOURER, EXCAVATION
8718-122	SHEET-PILE-HAMMER-MAN HELPER
8718-126	FLAGMAN
8718-130	LABOURER, SHORE DREDGING
8718-134	SHALLOW-WELL DIGGER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	4	4	5	H23456	04567	1	2-1	31	23

8731 - ELECTRICAL POWER LINEMEN AND RELATED OCCUPATIONS 261, 361, 381

WORK PERFORMED: This chapter includes occupations concerned with constructing and maintaining power lines and related equipment used to transmit and distribute electrical energy. Worker functions include: working to precise tolerances and levels of safety when installing and repairing power lines; compiling information from specifications or visual observations to determine appropriate work procedures; and analyzing test data to locate and identify equipment failures. Work activities include: erecting wooden poles and steel towers to support transmission lines; fitting transformers, lightning arrestors, switches and other accessories; stringing and splicing overhead cables and wires; installing underground and underwater conduit and cable systems; testing electrical-transmission systems for voltage fluctuations, improper connections and other defects; and repairing or replacing defective lines, cables, poles, auxiliary equipment and hardware to restore power.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply a knowledge of electricity and construction and maintenance procedures, and reasoning ability to diagnose causes of failure and determine the most effective steps needed to restore power; spatial perception to visualize the desired results of repair or construction work from drawings and specifications, and the proper functioning of parts or equipment forming power-line systems; eye-hand co-ordination, finger and manual dexterity to handle tools, splice wires and install or replace parts; eye-hand-foot co-ordination to balance and work at heights on poles, towers or equipment while fastening crossarms, wires and fixtures or making repairs; strength to perform heavy work requiring the lifting and carrying of heavy tools and equipment weighing in excess of fifty pounds; agility to climb poles and transmission towers; physical capacity to stoop, crouch or crawl while working in confined spaces such as underground vaults or ducts; capacity to extend arms in a variety of positions and use tools while holding or fastening parts into place; good speaking and hearing ability to communicate over considerable distances, for example, from ground level to top of transmission towers; visual acuity to see distant objects and for close-up work such as examining defective equipment; colour vision to distinguish various colour-coded wires and cables; good physical condition and capacity to withstand exposure to extremes in weather when working outside; adaptability to working in the presence of potential hazards such as falls when climbing poles and towers and possible shock from high-voltage electric wires.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; a four to five-year company sponsored apprenticeship program, or a similar form of on-the-job training. For 8731-126 LINEMAN, STREET RAILWAY, two to three years of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 8730-114 FOREMAN, ELECTRICAL-POWER LINEMEN AND RELATED OCCUPATIONS. See also Chapter 999, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: With limited additional training, workers in this chapter may transfer to appropriate occupations requiring similar skills in Chapters 8736, INSPECTING AND TESTING OCCUPATIONS; ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING; and 8739, ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

8731-110	SERVICE LINEMAN	8731-122	CABLE MAN
8731-114	LINEMAN, REPAIR	8731-126	LINEMAN, STREET RAILWAY
8731-118	LINEMAN		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	3	$\underline{3}$	3	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	$\underline{2}$	4	M23467	O-B6	4	8-6	910	OY8
			4		4		$\underline{2}$		$\underline{2}$	$\underline{3}$		H234567					

8733-A CONSTRUCTION ELECTRICIANS AND REPAIRMEN 261, 262, 281, 381

WORK PERFORMED: This chapter includes occupations concerned with installing wiring and associated equipment in buildings, houses and ships for the distribution of electrical power and making repairs to such electrical installations. Worker functions include: compiling information from drawings and interpreting specifications to determine materials needed and to plan sequence of installation; analyzing test data to assess repair requirements; and skilfully manipulating tools and equipment to attain precise standards of workmanship. Work activities include: installing power distribution systems; connecting lighting fixtures, conduit, junction boxes, circuit-protecting devices and associated equipment; and testing and repairing electrical installations.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the principles of electricity and the specifications, instructions and techniques required to install and repair wiring and associated equipment, and reasoning ability to plan activities and interpret building and safety codes; spatial perception to visualize the arrangement, function and relationship of electrical wiring and equipment from building drawings, wiring diagrams or other specifications; form perception to detect loose connections, broken cables, corrosion, defective insulation or other defects; eye-hand-finger co-ordination to install and repair wiring, switch boxes, panel boards, meters or other accessories; finger dexterity to quickly and accurately move fingers when cutting, connecting, soldering or insulating joints; manual dexterity to manipulate test equipment and a variety of hand and power tools; physical capacity to perform light to medium work and to extend the arms and hands to position and secure wire; agility to climb and maintain balance on poles, ladders and work platforms and to stoop, kneel and crouch to work in awkward positions; near visual acuity to read gauges, instruments and measuring devices; good colour vision to recognize colour-coded wires or cables; adaptability to work situations which may involve injuries from falls from poles or ladders and electrical shock from high voltage equipment; for some workers in Cluster A, adaptability to outside work involving exposure to seasonal weather conditions.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require; ten to twelve years of general education; a four to five-year apprenticeship program, usually provincially regulated, and may provide for regular periods of full-time attendance at a provincial trade school; completion of provincial certification requirements; or for 8733-130 ELECTRIC METERMAN, one to three years of on-the-job training.

ADVANCEMENT POSSIBILITIES:

Experienced workers with supervisory potential may advance to 8730-110 FOREMAN, CONSTRUCTION ELECTRICIANS AND REPAIRMEN. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Qualified workers who acquire knowledge of costing and estimating may become self-employed as contractors.

TRANSFER POSSIBILITIES: Transfer possibilities for qualified workers in this chapter are many. With limited additional training, workers may transfer to occupations requiring similar basic skills in, for example, maintainance and repair of equipment in industrial establishments, quality control work, or electrical work in manufacturing. Appropriate occupations may be found in Chapters 8531, ELECTRICAL EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS; 8533, ELECTRICAL AND RELATED EQUIPMENT INSTALLING AND REPAIRING OCCUPATIONS, N.E.C.; 8536, INSPECTING AND TESTING OCCUPATIONS: FABRICATING, ASSEMBLING, INSTALLING AND REPAIRING, ELECTRICAL, ELECTRONIC AND RELATED EQUIPMENT; 8736, INSPECTING AND TESTING OCCUPATIONS: ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING; and 8739, ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

8733-110 ELECTRICIAN, SHIPYARD
8733-118 COMPLAINT SERVICEMEN
8733-122 ELECTRICIAN
8733-130 ELECTRIC METERMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	3	3	4	LM2347	I-B6	4	8-7	910	Y0
				2						4							

8735-A WIRE COMMUNICATIONS AND RELATED EQUIPMENT INSTALLING AND REPAIRING OCCUPATIONS

261, 281, 361, 381

WORK PERFORMED: This chapter includes occupations concerned with erecting, installing, servicing and repairing overhead and underground telephone and telegraph lines and related equipment in central installations or place of use. Worker functions include: analyzing defects in circuits and equipment to ascertain extent of damage and repairs required; compiling data from specifications, diagrams and drawings to determine equipment layout and installation procedures; working to close tolerances when fitting and adjusting parts; manipulating hand and power tools to install, repair and maintain telephones and switchboards; and comparing results of electrical tests to specified standards. Work activities include: testing equipment and circuits using electronic or electrical testing devices; disassembling units or components to replace, clean, adjust or repair parts; climbing poles and ladders to replace or rearrange faulty wiring; and calibrating instruments and equipment.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the principles of electrical theory to the installation, repair and adjustment of electrical circuits and equipment; spatial perception to visualize circuits, equipment functions and layout from drawings and specifications; form perception to note defective electrical connections and worn or damaged parts; eye-hand-finger co-ordination and manual dexterity to use hand tools, power tools and test meters; finger dexterity to manipulate small objects with fingers and to bend, position or splice small wires; eye-hand-foot co-ordination when using ladders or climbing poles to install wiring, insulators and circuit breakers; strength to perform medium work requiring the lifting of objects weighing up to fifty pounds; capacity to stoop, kneel, crouch or crawl when working in confined spaces and underground vaults; capacity to speak clearly and good hearing for giving or receiving information or instructions; near visual acuity to read gauges and other testing devices, and to assemble or join small parts or wires; colour vision to recognize various colours used in wire-coding; adaptability to working in situations where there is definite risk of bodily inury from falls or electric shock.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; one to four years of on-the-job training supplemented by employers' courses.

ADVANCEMENT POSSIBILITIES: Experienced workers in this cluster may advance to 8730-118 FOREMAN, TELEPHONE AND TELEGRAPH INSTALLATION. See Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers may transfer to occupations requiring similar skills within their own cluster. With limited additional training, workers may also transfer to appropriate occupations in Chapter 8736, INSPECTING AND TESTING OCCUPATIONS: ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLATION AND REPAIRING, for example, 8736-114 CABLE TESTER, 8736-130 EXCHANGE TESTER, and 8736-138 TERMINAL AND REPEATER TESTER.

OCCUPATIONAL TITLES:

8735-110	CENTRAL-OFFICE-EQUIPMENT REPAIRMAN
8735-114	COMBINATION MAN
8735-118	COMMUNICATIONS-EQUIPMENT MAN
8735-122	PRIVATE-BRANCH- EXCHANGE REPAIRMAN
8735-126	STATION REPAIRMAN
8735-130	SIGNAL MAINTAINER
8735-134	TELEGRAPH-EQUIPMENT REPAIRMAN
8733-126T	CABLE REPAIRMAN
8735-142	PROTECTIVE-SIGNAL SERVICEMAN
8735-146	REPAIRMAN, SHOP
8735-150	SUBMARINE-CABLE-EQUIPMENT MECHANIC
8735-154	CENTRAL-OFFICE-EQUIPMENT INSTALLER
8735-158	PRIVATE-BRANCH-EXCHANGE INSTALLER
8735-162	STATION INSTALLER
8735-166	TELECOMMUNICATIONS-EQUIPMENT INSTALLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	3	3	3	3	M234567	B6	4	7-6	190	0Y1
			3	2						4	4						

8735-B WIRE COMMUNICATIONS AND RELATED EQUIPMENT INSTALLING AND REPAIRING OCCUPATIONS

364, 367, 664, 684

WORK PERFORMED: This chapter includes occupations concerned with erecting, installing, servicing and repairing overhead and underground telephone and telegraph lines and related equipment in central installations or place of use. Worker functions include: analyzing defects in circuits and equipment to ascertain extent of damage and repairs required; compiling data from specifications, diagrams and drawings to determine equipment layout and installation procedures; working to close tolerances when fitting and adjusting parts; manipulating hand and power tools to install, repair and maintain telephones and switchboards; and comparing results of electrical tests to specified standards. Work activities include: testing equipment and circuits using electronic or electrical testing devices; disassembling units or components to replace, clean, adjust or repair parts; climbing poles and ladders to replace or rearrange faulty wiring; and calibrating instruments and equipment.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the principles of electrical theory to the installation, repair and adjustment of electrical circuits and equipment; spatial perception to visualize circuits, equipment functions and layout from drawings and specifications; form perception to note defective electrical connections and worn or damaged parts; eye-hand-finger co-ordination and manual dexterity to use hand tools, power tools and test meters; finger dexterity to manipulate small objects with fingers and to bend, position or splice small wires; eye-hand-foot co-ordination when using ladders or climbing poles to install wiring, insulators and circuit breakers; strength to perform medium work requiring the lifting of objects weighing up to fifty pounds; capacity to stoop, kneel, crouch or crawl when working in confined spaces and underground vaults; capacity to speak clearly and good hearing for giving or receiving information or instructions; near visual acuity to read gauges and other testing devices, and to assemble or join small parts or wires; colour vision to recognize various colours used in wire-coding; adaptability to working in situations where there is definite risk of bodily injury from falls or electric shock.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster require: ten to eleven years of general education; three months to one year of on-the-job training supplemented by employers' courses.

ADVANCEMENT POSSIBILITIES: With experience and some additional training, workers in Cluster B may advance to higher skilled occupations in A. Experienced workers in both clusters may advance to 8730-118 FOREMAN, TELEPHONE AND TELEGRAPH INSTALLATION. See Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers may transfer to occupations requiring similar skills within their own cluster. With limited additional training, workers may also transfer to appropriate occupations in Chapter 8736, INSPECTING AND TESTING OCCUPATIONS: ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLATION AND REPAIRING, for example, 8736-114 CABLE TESTER, 8736-130 EXCHANGE TESTER, and 8736-138 TERMINAL AND REPEATER TESTER.

OCCUPATIONAL TITLES:

8735-170 CABLE-TELEVISION SERVICEMAN
8735-174 FACILITIES MAN
8735-178 CABLE MAN
8735-182 FRAMEMAN
8735-186 PROTECTIVE-SIGNAL-SERVICEMAN HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	4	3	2	4	M-234567	B-6	3	5-4	19	OY
			3	4	4		4	3		4	3						
										3							

8736 - INSPECTING AND TESTING OCCUPATIONS: ELECTRICAL POWER, LIGHTING, AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING

261, 264, 267, 361, 364, 367, 381

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the erection, installation and repair of equipment or wiring used to generate, transmit or distribute electrical power or telephone or telegraph communication signals. Worker functions include: compiling information from specifications, reports and complaints; analyzing inspection or test data to ensure equipment is functioning safely and properly, or to locate malfunctions; working to close tolerances when inspecting, testing or calibrating equipment; and manipulating and operating test apparatus. Work activities include: inspecting new or modified wiring in buildings for conformance to building codes; patrolling overhead power lines to detect damaged or defective equipment; testing electrical cables, meters and equipment for continuity, loading, accuracy or other factors; locating malfunctions in telegraph or telephone lines, repeaters and terminals; and preparing reports on findings and corrective action required.

APTITUDES AND CAPACITIES: learning ability to acquire a thorough knowledge of electrical equipment inspection and testing principles and procedures, and to apply this knowledge to interpret specifications and regulations and to detect and determine causes of defects and appropriate corrective action; spatial perception to interpret test instrument and meter displays or readings and relate the function and operation of electrical components to them; form perception to detect powerline, circuity or meter defects and irregularities such as corrosion, storm damage, loose connections, tampering or fire hazards; eye-hand co-ordination and finger dexterity to use ammeters, volt-meters, or other electrical test instruments and to manipulate small objects in confined work spaces; manual dexterity to move the hands skilfully when using hand tools to repair, replace and service repeaters, carriers, insulators, relays or switches; eye-hand-foot co-ordination and agility for workers who are required to climb and maintain balance on poles or towers; physical capacity to perform light to medium work, and to reach for and handle test equipment, tools and electrical components; capacity to speak clearly and receive information accurately over telephones or other communications equipment; near visual acuity to accurately read gauges, dials and meters; colour vision to distinguish colour coded wires or cables; adaptability to working in conditions which may involve exposre to wind, rain or snow and to injuries from falls from poles or towers and electrical shock from high voltage equipment.

TRAINING AND ENTRY REQUIREMENTS: ten to twelve years of general education; a two to four-year company sponsored apprenticeship program or a similar form of on-the-job training and related experience; for 8736-110 ELECTRICAL-WIRING INSPECTOR, a four to five year apprenticeship program, usually provincially regulated and one or more years of experience as a qualified worker on electrical installations and building wiring.

ADVANCEMENT POSSIBILITIES: With additional training, some workers in this chapter may advance to occupation requiring similar skills within the chapter. Those with experience and supervisory potential may also advance to appropriate occupations in Unit Group 8730, FOREMEN, ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for most workers are limited, however, with limited additional training, some workers may transfer to appropriate occupations requiring similar basic skills in Chapters 8731, ELECTRICAL POWER LINEMEN AND RELATED OCCUPATIONS; and 8739, ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

8736-110	ELECTRICAL-WIRING INSPECTOR	8736-134	ELECTRICAL-TESTING TECHNICIAN
8736-114	CABLE TESTER	8736-138	TERMINAL AND REPEATER TESTER
8736-118	PATROLMAN	8736-142	TRANSMISSION TESTER
8736-122	ELECTRIC-METER TESTER	8736-146	TAMPERING INSPECTOR
8736-126	TESTER AND REGULATOR	8736-150	VOLTAGE TESTER
8736-130	EXCHANGE TESTER	8736-154	WATT-HOUR-METER TESTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	4	3	5	4	L-M24567	I-B6	4-3	8-6	91	OY
			4			3	4	3	4	4							
										3							

8739-A ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING OCCUPATIONS, N.E.C.

261, 281, 361, 381

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with erecting, installing and repairing electrical power, lighting and wire communications equipment. Worker functions include: working precisely with test instruments to locate sources of electrical failure or malfunction; analyzing data from tests and circuit diagrams; compiling information for the servicing and repair of circuit breakers, regulators, relays, meters and transformers; manipulating hand and power tools to remove, dismantle, clean, examine, test, reassemble and install electrical equipment; and handling shovels, saws and shears to erect utility poles or clear right-of-way for power lines. Work activities include: servicing street lights; splicing multi-conductor cables; and erecting preassembled neon or plastic signs.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the principles of electricity, and reasoning ability to relate technical knowledge to installation and repair problems; spatial perception to visualize the arrangement, function and relationship of electrical parts and equipment represented in circuit diagrams or blueprints; form perception to visually examine meters, transformers or relays for physical defects such as corrosion, cracked weldments or worn and warped parts; eye-hand co-ordination and finger dexterity to make accurate and rapid movements when using ammeters, voltmeters, micrometers or other precision instruments; manual dexterity to move the hands easily and skilfully when splicing or wrapping cables or soldering and connecting wires; near visual acuity to read gauges, dials and circuit diagrams; colour vision to distinguish colour-coded wires or cables; eye-hand-foot co-ordination and agility to climb, maintain balance and work on ladders, poles, towers or scaffolds when servicing street lights, erecting signs, splicing cables or trimming trees; physical capacity to perform light to heavy work and to reach for and handle a variety of objects such as hand tools, chainsaws and testing devices; capacity to stoop, bend, kneel or crouch to dig post holes, move supplies or service electrical equipment in hard to reach positions; adaptability to work situations involving exposure to extreme weather conditions and to possible injuries due to falls from towers, poles or trees, and accidental contact with high voltages in equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; a two to four year company sponsored apprenticeship program or a similar form of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers may advance to appropriate quality-control occupations in Chapter 8736, INSPECTING AND TESTING OCCUPATIONS: ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING. Experienced workers with supervisory potential may advance to appropriate foreman occupations in Unit Group 8730, FOREMEN, ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: With limited additional training, workers may transfer to other occupations requiring similar basic skills within the cluster. Those who acquire the necessary qualifications and experience may also transfer to appropriate occupations in Chapters 8531 ELECTRICAL EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS and 8733, CONSTRUCTION ELECTRICIANS AND REPAIRMEN.

OCCUPATIONAL TITLES:

8739-110	ELECTRICIAN, POWERHOUSE	8739-134	POWER-TRANSFORMER REPAIRMAN
8739-114	CIRCUIT-BREAKER MECHANIC	8739-138	TRANSFORMER REPAIRMAN
8739-118	ELECTRICIAN, SUBSTATION	8739-142	STREET-LIGHT SERVICEMAN
8739-122	ELECTRIC-METER REPAIRMAN	8739-146	SALVAGE REPAIRMAN
8739-126	RELAY TEST & MAINTENANCE MAN	8739-150	ELECTRIC-SIGN ERECTOR
8739-130	CABLE SPLICER	8739-154	VOLTAGE-REGULATOR MAINTENANCE MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	3	4	4	L-M2347	B67	4-3	7-6	190	OY
			4							3							

8739-B ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING OCCUPATIONS, N.E.C.

684, 687

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with erecting, installing and repairing electrical power, lighting and wire communications equipment. Worker functions include: working precisely with test instruments to locate sources of electrical failure or malfunction; analyzing data from tests and circuit diagrams; compiling information for the servicing and repair of circuit breakers, regulators, relays, meters and transformers; manipulating hand and power tools to remove, dismantle, clean, examine, test, reassemble and install electrical equipment; and handling shovels, saws and shears to erect utility poles or clear right-of-way for power lines. Work activities include: servicing street lights; splicing multi-conductor cables; and erecting preassembled neon or plastic signs.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to acquire and apply a knowledge of basic electrical theory and to understand a variety of uninvolved oral or written instructions; spatial perception to judge relative distances from lines or installations when trimming trees and clearing brush from utility right-of-ways; eye-hand-finger co-ordination and manual dexterity to use chainsaws to fell trees, or hand tools to attach guy wires or secure steel posts; eye-hand-foot co-ordination and agility to climb, maintain balance and work on ladders, poles, towers or scaffolds when servicing street lights, erecting signs, splicing cables or trimming trees; physical capacity to perform light to heavy work and to reach for and handle a variety of objects such as hand tools, chainsaws and testing devices; capacity to stoop, bend, kneel or crouch to dig post holes, move supplies or service electrical equipment in hard to reach positions; adaptability to work situations involving exposure to extreme weather conditions and to possible injuries due to falls from towers, poles or trees, and accidental contact with high voltages in equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; up to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, some workers in Cluster B may advance to other occupations requiring higher skills in Cluster A. Experienced workers with supervisory potential may advance to appropriate foreman occupations in Unit Group 8730, FOREMEN: ELECTRICAL POWER, LIGHTING AND WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING AND REPAIRING OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: With limited additional training, workers in this chapter may transfer to other occupations requiring similar basic skills within their individual cluster. Those who acquire the necessary qualifications and experience may also transfer to appropriate occupations in Chapters 8531, ELECTRICAL EQUIPMENT FABRICATING AND ASSEMBLING OCCUPATIONS and 8733, CONSTRUCTION ELECTRICIANS AND REPAIRMEN.

OCCUPATIONAL TITLES:

8739-158	CABLE-SPLICER HELPER	8739-170	TREE TIMMER
8739-162	ELECTRICAL HELPER	8739-174	STEEL-POST INSTALLER
8739-166	GROUNDMAN		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5 4	4	4	5	4	4	3 4	3 4 2	5 4	M-H234	B-6	3-2	5-2	31	23Y

8781-A CARPENTERS AND RELATED OCCUPATIONS 361, 381, 484

WORK PERFORMED: This chapter includes occupations concerned with constructing, erecting, and repairing wooden structures such as building frameworks, concrete forms and scaffolding, and installing floors, trim and fixtures in buildings. Worker functions include: working to close tolerances when layout out, cutting and shaping parts; compiling data from drawings, sketches or building plans and specifications to determine type and amount of lumber, plywood and other materials to be used; and manipulating hand tools, power tools and measuring instruments to cut and shape wood. Work activities include: marking cutting or assembly lines on materials; sawing, grooving, planing or sanding materials by hand or machine; assembling or fastening parts using nails, screws, dowel pins or glue;erecting structures; and installing doors, windows and other prefabricated items.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the basic principles of construction carpentry used in making wood structures and fixtures, and ability to select and use proper materials and tools; numerical ability to lay out and accurately mark materials for cutting, using rule and framing square and to calculate quantities of materials; spatial perception to visualize the finished products and the location of various integral parts from drawings and specifications; eye-hand-finger co-ordination and manual dexterity to accurately and quickly measure and mark material for cutting and to use hand and power tools to cut materials and to fasten materials with nails and screws; eye-hand-foot co-ordination to carry and lift building tools and materials while ascending, working and maintaining balance on ladders, planks or scaffolding; capacity to perform medium work requiring the frequent lifting of tools, materials and assemblies weighing up to fifty pounds; capacity to stoop, kneel and crouch while handling materials or using tools; visual acuity, both near and far and depth perception; adaptability to working both inside under controlled environmental conditions and outside where there is likely to be no effective protection against extremes of temperature; adaptability to conditions where there is a definite risk of bodily injury.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; a four-year apprenticeship program, usually provincially regulated, which provides for periods of full-time attendance at provincial trade schools, or a similar form of on-the-job training; completion of provincial certification requirements.

ADVANCEMENT POSSIBILITIES: With additional training, workers may advance to occupations requiring higher skills within this chapter. Experienced workers with supervisory potential may advance to 8780-114 FOREMAN, CARPENTERS AND RELATED WORKERS or to the appropriate occupation in Unit Group 8540, FOREMEN: FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, WOOD PRODUCTS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifcations profile. Carpenters who acquire knowledge of business practices may also become self-employed as subcontractors or as owners of their own establishments.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to other occupations within the chapter or to appropriate occupations requiring similar basic skills in other chapters, for example, 8541 CABINET AND WOOD-FURNITURE MAKERS.

OCCUPATIONAL TITLES:

8781-110 CARPENTER
8781-114 CARPENTER, MAINTENANCE
8781-118 CARPENTER, ROUGH

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	AP	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	3	3	4	M-2347	B-6	4-3	7-6	190	OY
		4									5						

8781-B CARPENTERS AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with constructing, erecting, and repairing wooden structures such as building frameworks, concrete forms and scaffolding, and installing floors, trim and fixtures in buildings. Worker functions include: working to close tolerances when layout out, cutting and shaping parts; compiling data from drawings, sketches or building plans and specifications to determine type and amount of lumber, plywood and other materials to be used; and manipulating hand tools, power tools and measuring instruments to cut and shape wood. Work activities include: marking cutting or assembly lines on materials; sawing, grooving, planing or sanding materials by hand or machine; assembling or fastening parts using nails, screws, dowel pins or glue; erecting structures; and installing doors, windows and other prefabricated items.

APTITUDES AND CAPACITIES: Workers in this chapter require: Carpenter Helpers; learning ability to understand and apply the basic principles of carpentry; spatial perception to visualize objects of two or three dimensions and the positioning of members to form the overall structure; eye-hand-finger co-ordination and manual dexterity to accurately and quickly measure and mark material for cutting and to use hand and power tools to cut materials and to fasten materials with nails and screws; eye-hand-foot co-ordination to carry and lift building tools and materials while ascending, working and maintaining balance on ladders, planks or scaffolding; capacity to perform medium work requiring the frequent lifting of tools, materials and assemblies weighing up to fifty pounds; capacity to stoop, kneel and crouch while handling materials or using tools; visual acuity, both near and far and depth perception; adaptability to working both inside under controlled environmental conditions and outside where there is likely to be no effective protection against extremes of temperature; adaptability to conditions where there is a definite risk of bodily injury.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; a four-year apprenticeship program, usually provincially regulated, which provides for periods of full-time attendance at provincial trade schools, or a similar form of on-the-job training; completion of provincial certification requirements; for 8781-122 CARPENTER HELPER, one to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers may advance to occupations requiring higher skills within this chapter. Experienced workers with supervisory potential may advance to 8780-114 FOREMAN, CARPENTERS AND RELATED WORKERS or to the appropriate occupation in Unit Group 8540, FOREMEN: FABRICATING, ASSEMBLING AND REPAIRING OCCUPATIONS, WOOD PRODUCTS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Carpenters who acquire knowledge of business practices may also become self-employed as subcontractors or as owners of their own establishments.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to other occupations within the chapter or to appropriate occupations requiring similar basic skills in other chapters, for example, 8541 CABINET AND WOOD-FURNITURE MAKERS.

OCCUPATIONAL TITLES:

8781-122 CARPENTER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	3	5	M-2347	B-6	2	3	13	23Y

8782-A BRICK AND STONE MASONS AND TILE SETTERS

361, 381, 384

WORK PERFORMED: This chapter includes occupations concerned with preparing and laying brick, stone, concrete block, tile, marble and refractory and related materials. Worker functions include: working to close tolerances when laying out work and shaping, setting and aligning masonry; compiling information from drawings and specifications to determine layout, materials and appropriate construction or repair techniques; and manipulating materials, trowels, levels, plum bob, lines and other work aids. Work activities include: examining materials for specified colour, size and shape; measuring and marking locations for the laying of masonry; mixing and spreading mortar or adhesives; laying brick, stone, tile or refractory materials and placing and tamping them into alignment; filling and caulking joints; cleaning masonry surfaces; cleaning chimneys; removing old masonry materials and rebuilding designated areas; and directing helpers in the setting and supplying of material.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the principles governing the use of masonry in construction and to acquire the skills needed to lay bricks, concrete blocks, tiles or similar building materials; numerical ability to make accurate calculations when deciding on quantity, size and shape of brick, stone or tile required, or when marking guidelines and reference points or measuring distances; spatial perception to visualize from drawings and specifications the structure to be built, and the positioning of materials and sequence of operations required to form the structure; eye-hand-finger co-ordination and manual dexterity to accurately and rapidly lay or cut brick, stone, blocks or tile; eye-hand-foot co-ordination and agility to maintain balance on ladders or scaffolds while simultaneously performing manual operations involving visual co-ordination; physical capacity to extend the arms and hands and perform medium to very heavy work; agility to work in crouching, stooping, kneeling or other awkward positions; near and far visual acuity and depth perception to detect cracks, read measuring devices and verify alignments; good colour vision to distinguish colour differences in tile, stone or brick; adaptability to inside and outside work while exposed to seasonal weather conditions, proximity to noise from construction equipment, and the presence of potential hazards which may result in injuries from falls, falling objects or cuts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; for most occupations, a three to four-year apprenticeship program, usually provincially regulated, or similar on-the-job training; completion of provincial examination requirements; for other occupations, one to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to other occupations within the chapter. Experienced workers may advance to 8796-122 MASONRY INSPECTOR and those with supervisory potential to 8780-110 FOREMAN, BRICK AND STONE MASONS AND TILE SETTERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to occupations requiring similar skills wihin the chapter. With limited additional training, workers may also transfer to occupations requiring similar basic skills in other chapters, for example Chapter 8783, CONCRETE FINISHING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8782-110 BRICKLAYER
8782-114 BRICKLAYER, REFRACTORY BRICK
8782-118 REFRACTORY-BRICK REPAIRMAN
8782-122 BRICK-SMOKESTACK BUILDER & REPAIRMAN
8782-126 STONEMASON
8782-130 TILE SETTER
8782-134 MARBLE SETTER
8782-138 MASONRY-SILO ERECTOR
8782-142 STONE SETTER
8782-146 KILN-MAINTENANCE MAN
8782-150 MOSAIC-TILE WORKER
8782-154 SIMULATED-STONE INSTALLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	3	3	4	4	3	4	3	4	4	M-H2347	B56	4-3	7-5	190	YO
			4	4		5		3		3	5						

8782-B BRICK AND STONE MASONS AND TILE SETTERS 384, 684

WORK PERFORMED: This chapter includes occupations concerned with preparing and laying brick, stone, concrete block, tile, marble and refractory and related materials. Worker functions include: working to close tolerances when laying out work and shaping, setting and aligning masonry; compiling information from drawings and specifications to determine layout, materials and appropriate construction or repair techniques; and manipulating materials, trowels, levels, plum bob, lines and other work aids. Work activities include: examining materials for specified colour, size and shape; measuring and marking locations for the laying of masonry; mixing and spreading mortar or adhesives; laying brick, stone, tile or refractory materials and placing and tamping them into alignment; filling and caulking joints; cleaning masonry surfaces; cleaning chimneys; removing old masonry materials and rebuilding designated areas; and directing helpers in the setting and supplying of material.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow masonry repair and construction procedures, either within well established guidelines or as a helper; spatial perception to visualize the desired or original structure from plans or instructions to retain or restore contours or shape; eye-hand-finger co-ordination and manual dexterity to mix mortar, fireclay, grout or cement, fill or caulk spaces, cracks and joints, and to use trowels, chisels, hammers as well as other hand or power tools; eye-hand-foot co-ordination and agility to maintain balance on ladders or scaffolds while simultaneously performing manual operations involving visual co-ordination; physical capacity to extend the arms and hands and perform medium to very heavy work; agility to work in crouching, stooping, kneeling or other awkward positions; near and far visual acuity and depth perception to detect cracks, read measuring devices and verify alignments; good colour vision to distinguish colour differences in tile, stone or brick; adaptability to inside and outside work while exposed to seasonal weather conditions, proximity to noise from construction equipment, and the presence of potential hazards which may result in injuries from falls, falling objects or cuts.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; on-the-job training from one month to one year, depending on the occupation.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to other occupations with the chapter. Experienced workers may advance to 8796-122 MASONRY INSPECTOR and those with supervisory potential to 8780-110 FOREMAN, BRICK AND STONE MASONS AND TILE SETTERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers in this chapter may transfer to occupations requiring similar skills within the chapter. With limited additional training, workers may also transfer to occupations requiring similar basic skills in other chapters, for example Chapter 8783, CONCRETE FINISHING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8782-158	CHIMNEY CLEANER AND REPAIRMAN
8782-162	OVEN REPAIRMAN
8782-166	MONUMENT SETTER
8782-170	CUPOLA REPAIRMAN
8782-174	LADLE LINER
8782-178	MASONRY POINTER AND CAULKER
8782-182	BRICKLAYER HELPER, REFRACTORY BRICK
8782-186	CUPOLA RELINER, SPRAY
8782-190	BRICKLAYER HELPER
8782-194	TILE-SETTER HELPER
8782-198	MARBLE-SETTER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	$\overline{4}$	4	5	$\underline{3}$	4	$\underline{3}$	4	5	M-VH2347	B-56	3-2	5-2	319	20Y
	3		5	$\underline{3}$						$\underline{3}$	4						23Y

8783-A CONCRETE FINISHING AND RELATED OCCUPATIONS 661, 664, 682, 684

WORK PERFORMED: This chapter includes occupations concerned with pouring and casting concrete at construction sites; levelling, smoothing and finishing concrete and similar hard surfaces; and laying and polishing terrazzo. Worker functions include: manipulating trowels, floats, brushes and cement guns, and operating powered vibrating, levelling and polishing tools; tending machines that pump grout or concrete mixtures through hoses or pipelines at work sites; comparing contour, texture or appearance of finished work to acceptable standards; and handling materials and objects used in concrete or cement construction. Work activities include: applying cement, sand, pigment and marble chips to floor, walls and fixtures to attain durable and decorative surfacing; levelling and finishing exposed surfaces of freshly-poured concrete floors, roads, curbs and sidewalks; erecting prefabricated steel forms and associated supports used to mould concrete structures; and applying coatings of stucco, cement, mortar or concrete through a hose to exposed surfaces of buildings or other structures.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the principles and techniques involved in pouring, casting and finishing concrete, terrazzo and similar surfaces, and ability to judge setting times and other characteristics of various cement and concrete mixes; eye-hand-finger coordination to spray cement mixtures evenly over exposed surfaces of structures, accurately place small marble chips in terrazzo floors and use hand tools to measure and secure concrete forms and supports; manual dexterity to use trowels and floats to smooth or finish concrete; physical strength and stamina to perform medium to heavy tasks such as operating concrete vibrators and surface-finishing machines, dumping and spreading concrete or erecting steel cement forms; capacity to work for prolonged periods while stooping or kneeling when laying or finishing cement surfaces, concrete highways, curbs, sidewalks or terrazzo floors; visual acuity to check alignment, placement and form of materials, or to recognize by sight the working characteristics of concrete mixes; colour vision to recognize state of concrete mix as indicated by change in colour shade; adaptability to working both indoors and outside in seasonal weather conditions and in frequent contact with wet materials; adaptability to conditions of sustained high noise levels produced by adjacent construction machinery such as compressors and pumps; adaptability to working in the presence of potential injury from hazards such as open scaffolds, falling tools, or dust and unpleasant atmospheric conditions; spatial perception to visualize the three-dimensional nature of completed concrete structures or products from drawings or instructions.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; for 8783-110 TERRAZZO WORKER, 8783-118 CEMENT MASON, HIGHWAYS AND STREETS AND 8783-122 CONCRETE FINISHER, a three to four-year apprenticeship program, usually provincially regulated, and which may provide for periods of full-time attendance at provincial trade schools, or a similar form of on-the-job training; completion of provinical certification requirements; for other occupations in this cluster, one month to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training workers in this chapter may advance to occupations requiring higher skills within their individual cluster. Experienced workers with supervisory potential may advance to 8780-118 FOREMAN, CONCRETE FINISHERS AND RELATED WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Terrazzo Workers, Cement Masons and Concrete Finishers may also become self-employed as subcontractors or contractors.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to occupations requiring similar skills within the chapter or to appropriate occupations in Chapter 8713 PAVING, SURFACING AND RELATED OCCUPATIONS for example, 8713-142 CONCRETE-GROOVING-MACHINE OPERATOR.

OCCUPATIONAL TITLES:

8783-110	TERRAZZO WORKER
8783-114	CEMENT-GUN NOZZLEMAN
8783-118	CEMENT MASON, HIGHWAYS AND STREETS
8783-122	CONCRETE FINISHER
8783-126	STEEL-FORMS SETTER
8783-130	CONCRETE-STONE FINISHER
8783-134	CONCRETE-GUN-MIXER OPERATOR
8783-142	CONCRETE-FLOAT MAKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	4	4	3	4	3	4	4	M-H2347	O-B456	3	7-3	913	Y2
				4		5					5						

8783-B CONCRETE FINISHING AND RELATED OCCUPATIONS

684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with pouring and casting concrete at construction sites; levelling, smoothing and finishing concrete and similar hard surfaces; and laying and polishing terrazzo. Worker functions include: manipulating trowels, floats, brushes and cement guns, and operating powered vibrating, levelling and polishing tools; tending machines that pump grout or concrete mixtures through hoses or pipelines at work sites; comparing contour, texture or appearance of finished work to acceptable standards; and handling materials and objects used in concrete or cement construction. Work activities include: applying cement, sand, pigment and marble chips to floor, walls and fixtures to attain durable and decorative surfacting; levelling and finishing exposed surfaces of freshly-poured concrete floors, roads, curbs and sidewalks; erecting prefabricated steel forms and associated supports used to mould concrete structures; and applying coatings of stucco, cement, mortar or concrete through a hose to exposed surfaces of buildings or other structures.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply the principles and techniques involved in pouring, casting and finishing concrete, terrazzo and similar surfaces, and ability to judge setting times and other characteristics of various cement and concrete mixes; eye-hand-finger co-ordination to spray cement mixtures evenly over exposed surfaces of structures, accurately place small marble chips in terrazzo floors and use hand tools to measure and secure concrete forms and supports; manual dexterity to use trowels and floats to smooth or finish concrete; physical strength and stamina to perform medium to heavy tasks such as operating concrete vibrators and surface-finishing machines, dumping and spreading concrete or erecting steel cement forms; capacity to work for prolonged periods while stooping or kneeling when laying or finishing cement surfaces, concrete highways, curbs, sidewalks or terrazzo floors; visual acuity to check alignment, placement and form of materials, or to recognize by sight the working characteristics of concrete mixes; colour vision to recognize state of concrete mix as indicated by change in colour shade; adaptability to working both indoors and outside in seasonal weather conditions and in frequent contact with wet materials; adaptability to conditions of sustained high noise levels produced by adjacent construction machinery such as compressors and pumps; adaptability to working in the presence of potential injury from hazards such as open scaffolds, falling tools, or dust and unpleasant atomospheric conditions.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight years of general education; on-the-job training ranging from a short demonstration for some occupations, to six months for others.

ADVANCEMENT POSSIBILITIES: With additional training workers in this chapter may advance to occupations requiring higher skills within their individual cluster or from Cluster B to A. Experienced workers with supervisory potential may advance to 8780-118 FOREMAN, CONCRETE FINISHERS AND RELATED WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter may be to occupations requiring similar skills within the chapter or to appropriate occupations in Chapter 8713 PAVING, SURFACING AND RELATED OCCUPATIONS for example, 8713-142 CONCRETE-GROOVING-MACHINE OPERATOR.

OCCUPATIONAL TITLES:

8783-146 TERRAZZO-WORKER HELPER
8783-150 STEEL-FORMS-SETTER HELPER
8783-154 GROUTERMAN
8783-158 CEMENT-GUN-MACHINE TENDER
8783-162 MOULDMAN, SIMULATED STONE
8783-166 CONCRETE VIBRATOR
8783-170 PUMP TENDER, CEMENT AND CONCRETE
8783-174 CEMENT-GUN-NOZZLEMAN HELPER
8783-178 CONCRETE-FINISHER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5 4	4	4	5	4 3	4	3 4	4	5	M-H234	O-B456	2	4-2	139 31	23

WORK PERFORMED: This chapter includes occupations concerned with fastening lath to walls and ceilings; and applying plaster, stucco, plasterboard or related materials to interior or exterior building surfaces. Worker functions include; working to precise dimensions when installing lath or applying ornamental or finishing coats of plaster; manipulating sheet materials, hand tools and measuring devices during lathing and dry-wall construction work; and comparing finished work to ensure acceptable standards are met. Work activities include: verifying trueness of corners, walls and ceilings; cutting lath and wiring, nailing, screwing, clipping or stapling lath to framework, ceiling joists and flat concrete surfaces; mixing plaster to desired consistency; erecting trestles and scaffolds; levelling base coat and final coats of plaster; creating decorative textures in finish coat; and taping and sanding joints between dry-wall sheets.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to learn and apply the principles and skills of plastering or lathing, to understand the composition and mixing of materials and to interpret drawings and specifications; spatial perception to visualize objects in two or three dimensions represented on architectural drawings; eye-hand-finger co-ordination and manual dexterity to make precise movements with speed, especially with quick-drying finishing operations, when applying plaster to ceilings or shaping plaster cornices and mouldings on buildings; adaptability to inside work activities, to potential hazards such as working on ladders or handling lime, and to irritating atmospheric conditions caused by odours and dusts from plaster materials; form perception to make visual comparisons of plaster or dry-wall surfaces in order to detect roughness, irregular shapes, holes or cracks; eye-hand-foot co-ordination and agility to climb and maintain balance on ladders or scaffolds; physical capacity to perform medium to heavy work and to extend the arms and hands in any direction while working on ceilings or walls; capacity to stoop, kneel, lean or crouch to apply materials to hard to reach positions; visual acuity, near and far, as well as depth perception to judge surface characteristics when applying plaster or dry-wall materials.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; a three to four-year apprenticeship program which may be provincially regulated, or a similar form of on-the-job training; completion of certification requirements.

ADVANCEMENT POSSIBILITIES: With additional training and experience, some workers in thsi chapter may advance to other occupations within the chapter. Those with supervisory potential may advance to 8780-142 FOREMAN, PLASTERERS AND RELATED WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Experienced plasterers may become self-employed as sub-contractors.

TRANSFER POSSIBILITIES: Transfer possibilities are limited, usually to other occupations within the chapter. With additional training, some workers may transfer to other occupations where there is similarity in the basic skills and materials used, such as those in Chapter 8783, CONCRETE FINISHING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8784-110	PLASTERER, ORNAMENTAL
8784-114	PLASTERER
8784-118	PLASTERER, STUCCO
8784-122	LATHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	4	4	3	4	3	3	4						
						5		3			5	M-H2347	B-67	4-3	7-6	190	YO

8784-B PLASTERERS AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with fastening lath to walls and ceilings; and applying plaster, stucco, plasterboard or related materials to interior or exterior building surfaces. Worker functions include: working to precise dimensions when installing lath or applying ornamental or finishing coats of plaster; manipulating sheet materials, hand tools and measuring devices during lathing and dry-wall construction work; and comparing finished work to ensure acceptable standards are met. Work activities include: verifying trueness of corners, walls and ceilings; cutting lath and wiring, nailing, screwing, clipping or stapling lath to framework, ceiling joists and flat concrete surfaces; mixing plaster to desired consistency; erecting trestles and scaffolds; levelling base coat and final coats of plaster; creating decorative textures in final coat; and taping and sanding joints between dry-wall sheets.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to acquire and apply a thorough knowledge of dry-wall construction; numerical ability for 8786-126 DRY-WALL APPLICATOR to accurately measure area to be covered and to scribe dimensions on wallboard sheets to mark cutting lines; spatial perception to visualize detailed sequence of dry-wall application in order to perform installation activities efficiently; eye-hand-finger co-ordination to position and fit wallboard to walls or ceilings or to accurately position and apply paper tape to blend joints with adjacent surfaces; manual dexterity to skilfully use hammers, trowels, knives, sanders or mixers; adaptability to irritating atmospheric conditions, such as dusts from plasterboard or odors from taping compounds; form perception to make visual comparisons of plaster or dry-wall surfaces in order to detect roughness, irregular shapes, holes or cracks; eye-hand-foot co-ordination and agility to climb and maintain balance on ladders or scaffolds; physical capacity to perform medium to heavy work and to extend the arms and hands in any direction while working on ceilings or walls; capacity to stoop, kneel, lean or crouch to apply materials to hard to reach positions; visual acuity, near and far, as well as depth perception to judge surface characteristics when applying plaster or dry-wall materials.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; six months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training and experience, some workers in this chapter may advance to other occupations within the chapter. Those with supervisory potential may advance to 8780-142 FOREMAN, PLASTERERS AND RELATED WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities are limited, usually to other occupations within the chapter. With additional training, some workers may transfer to other occupations where there is similarity in the basic skills and materials used, such as those in Chapter 8783, CONCRETE FINISHING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

8784-126	DRY-WALL APPLICATOR
8784-130	DRY-WALL TAPER
8784-134	DRY-WALL SANDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	3	4	5	3	4	3	3	5	L-M2347	I-7	3-2	5-2	139	2Y3
	3		3	4			4			4							
			5														

8785-A PAINTERS, PAPERHANGERS AND RELATED OCCUPATIONS 661, 681, 684

WORK PERFORMED: This chapter includes occupations concerned with applying paint and related materials to interior or exterior surfaces of buildings and other structures; applying wallpaper and fabrics to walls and ceilings; and placing advertising posters on billboards. Worker functions include: working to close tolerances when measuring and laying out work, cutting deocrative wall-covering materials, or selecting proper colour shades; manipulating brushes, rollers and spray guns to apply paints or wallpaper sizing; comparing quality of finished work to acceptable standards; and operating spray-painting equipment. Work activities include: erecting ladders, scaffolds and suspended platforms to reach work areas; preparing surfaces for painting and paperhanging by removing old paint or paper, sanding and smoothing rough areas, and repairing plaster surfaces; selecting materials and mixing paints, tints or glues; and pasting and trimming paper for application to walls or outdoor display signs.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply painting or paperhanging techniques; form perception to observe pertinent detail such as smoothness and texture of surfaces and to determine their suitability for painting or covering with paper or other decorative materials; eye-hand-finger co-ordination to make rapid and accurate movements when operating spray guns to apply paint evenly to surfaces or when applying wallpaper; manual dexterity to easily and skilfully move hands, arms and particularly the wrists when brushing or rolling paint onto surfaces or positioning wallpaper; eye-hand-foot co-ordination to climb and balance on ladders and scaffolds while working at varying heights; strength to perform light to medium work requiring frequent lifting and carrying of materials weighing from ten to twenty pounds and lifting of materials weighing up to fifty pounds; capacity to work in standing, crouching, stooping or kneeling positions for extended periods, while preparing surfaces for painting or applying paint or wallpaper; capacity to work inside or outside, while subject to falls from ladders or scaffolds and exposure to paint fumes, mists and dust; numerical ability for painters and paperhangers who estimate materials and labour costs; colour discrimination to distinguish, to a fine degree, similarities or differences in colour or in shades of same colour when mixing or matching paints; visual acuity, both near and far, to ensure even application of paints and finishes, sharpness and accuracy of lines and alignment of decorative coverings.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; a three to four-year apprenticeship program, usually provincially regulated, which may provide for regular periods of full-time attendance at a provincial trade school or a similar form of on-the-job training; completion of provincial examination requirements; for 8785-118 PAINTER, ROUGH on-the-job training ranging from two to six months.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to other occupations within the chapter. Experienced workers with supervisory potential may advance to 8780-138 FOREMAN, PAINTERS, PAPERHANGERS AND RELATED WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Qualified workers who acquire knowledge of business practices may also become self-employed as contractors.

TRANSFER POSSIBILITIES: Transfer possibilities are limited, but workers may transfer to other painting and decorating occupations in Chapter 8595, PAINTING AND DECORATING OCCUPATIONS, EXCEPT CONSTRUCTION such as 8595-118 PAINTER, SHIPYARD.

OCCUPATIONAL TITLES:

8785-110 PAINTER
8785-114 PAPERHANGER
8785-118 PAINTER, ROUGH

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	3	4	3	5	3	3	3	3	3	L-M2347	I-B67	3	7-5	13	Y9
		3	4	3	4	4		4			2						Y92

8786 - INSULATING OCCUPATIONS, CONSTRUCTION

664, 684

WORK PERFORMED: This chapter includes occupations concerned with insulating buildings and exposed surfaces of heating and cooling equipment to prevent or reduce the passage of heat, cold or sound. Worker functions include: manipulating hand and power tools to cut, fit and fasten various types of insulating material into position, and operating controls of insulating equipment to direct flow of materials into spaces or recesses; and comparing applied materials to acceptable standards. Work activities include: injecting or spraying foamed insulation into building walls or onto structures; covering exposed surfaces of pipes, steam generators, vats, ducts and similar items with cork, asbestos or other insulating materials; fastening fibreglass batts and foamed slabs into position in buildings, refrigerated rooms or vehicles and blowing loose insulation between walls, ceilings and partitions.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the basic principles involved in heat and sound conduction, interpret specifications and drawings and learn the techniques of insulation work; spatial perception to visualize the positioning of insulation from drawings and to judge shapes and sizes of insulation materials such as prefabricated sections for covering pipes or other areas; eye-hand-finger co-ordination to rapidly and skilfully use hand tools such as knives, scissors, stapling guns and brushes to apply insulation materials; manual dexterity to move the hands easily and quickly when placing and fastening insulating blocks and batts or forming asbestos covering around pipes; eye-hand-foot co-ordination to apply insulating materials while standing on ladders or narrow platforms; physical strength to perform work that occasionally requires lifting and carrying of materials and machines weighing up to fifty pounds; agility to climb ladders and ability to balance while working on scaffolds; physical capacity to work in crouching, stooping or other awkward positions and to apply insulation in confined areas, or cover pipes in narrow, low-ceiling tunnels or around boilers or refrigeration systems; capacity to reach in any direction and handle materials and tools while applying insulation in inaccessible areas; adaptability to conditions of varying or extreme temperatures which occur when insulating partially completed buildings or maintaining insulated pipework of refrigeration systems or boilers and steamheating installations; adaptability to potential hazards such as falls from ladders or scaffolds, injury from falling tools or burns from hot pipes; adaptability to working conditions where dust or mildly toxic fumes may be present.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; up to four years of apprenticeship, usually employer sponsored but in some areas provincially regulated or a similar form of on-the-job training; completion of certification requirements. For 8786-126 INSULATION HOSEMAN, three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 8780-130 FOREMAN, INSULATORS. Qualified workers who acquire a knowledge of costing may advance to job estimators or may become self-employed as contractors.

TRANSFER POSSIBILITIES: Because of specialization transfer is normally limited to other occupations requiring similar skills within the chapter.

OCCUPATIONAL TITLES:

8786-110	FOAMED-INSULATION APPLICATOR
8786-114	BOILER AND PIPE INSULATOR
8786-118	BUILDING INSULATOR
8786-122	REFRIGERATION AND AIR-CONDITIONING EQUIPMENT INSULATOR
8786-126	INSULATION HOSEMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	4	5	M234	I-B67	3-2	6-3	193	20Y
	3						4			3							20

WORK PERFORMED: This chapter includes occupations concerned with covering roofs with metal, wood, asphalt, tar, gravel and other materials, and applying waterproofing compounds to surfaces of underground structures. Worker functions include: manipulating hand tools, power tools and equipment to cut, shape, fit and apply covering materials; computing quantities of roofing materials required for jobs by examining drawings, specifications and work sites; and handling supplies, materials and equipment around work area. Work activities include: erecting hoists and scaffolding to raise materials and provide access to roofs; positioning, aligning and securing flashings and shingles, roofing paper, sheet metal and tile to roof surfaces; spreading gravel over hot tar to form final protective coating for asphalt or tar roofs; caulking joints and nail holes to waterproof surfaces; and brushing or spraying waterproofing compounds on surfaces of building foundations, swimming pools, tunnels and other underground structures.

APTITUDES AND CAPACITIES: Workers in this cluster require: general learning ability to understand and apply roofing and waterproofing techniques and for workers in Cluster A to interpret construction drawings and specifications; eye-hand co-ordination to lay and fasten rows of shingles and layers of paper on roof surfaces, to paint or spray waterproofing compound on surfaces and spread tar and gravel on roofs; manual dexterity to make placing and turning motions easily and quickly, and to use hand and power tools associated with roofing; eye-hand-foot co-ordination to balance on roofs, scaffolds or platforms while laying and securing shingles and metal panels or applying waterproofing and sealing compounds; physical strength to perform medium to heavy tasks frequently requiring lifting or carrying bundles of shingles, rolls of roofing and other materials up to ninety pounds in weight; agility to climb ladders and work from inclined roof surfaces; capacity to work for prolonged periods while stooping, bending or kneeling during the laying and fastening of shingles on large roof expanses; adaptability to working in situations where the individual is subject to physical injury by falling or slipping from roofs, ladders and other surfaces; numerical ability for workers who regularly estimate amounts of materials and costs for each job; spatial perception to visualize the complete roof structure from drawings; form perception to observe detail in design and shape when laying shingles on roofs in symmetrical or other patterns; adaptability to performing work often involving prolonged exposure to extreme weather conditions.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; an apprenticeship program of up to four years duration, which may be provincially regulated and provide periods of full-time attendance at a provincial trade school or a similar form of on-the-job training; completion of certification requirements; for 8787-122 WATERPROOFER, six months to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 8780-154 FOREMAN, ROOFERS AND WATERPROOFERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Those who acquire knowledge of costing may advance to estimators or may become self-employed as contractors.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations requiring similar skills in other construction work.

OCCUPATIONAL TITLES:

8787-110	ROOFER, METAL
8787-114	ROOFER, SHINGLES
8787-118	ROOFER, TAR AND GRAVEL
8787-122	WATERPROOFER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	3	3	4	4	3	3	3	3	4	M234	0-B67	3	6-4	190	0Y
	4	3	4	4	3	5	4	4	2	4	5						0Y2

8787-B ROOFING, WATERPROOFING AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with covering roofs with metal, wood, asphalt, tar, gravel and other materials, and applying waterproofing compounds to surfaces of underground structures. Worker functions include: manipulating hand tools, power tools and equipment to cut, shape, fit and apply covering materials; computing quantities of roofing materials required for jobs by examining drawings, specifications and work sites; and handling supplies, materials and equipment around work area. Work activities include: erecting hoists and scaffolding to raise materials and provide access to roofs; positioning, aligning and securing flashings and shingles, roofing paper, sheet metal and tile to roof surfaces; spreading gravel over hot tar to form final protective coating for asphalt or tar roofs; caulking joints and nail holes to waterproof surfaces; and brushing or spraying waterproofing compounds on surfaces of building foundations, swimming pools, tunnels and other underground structures.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply roofing and water-proofing techniques; eye-hand co-ordination to lay and fasten rows of shingles and layers of paper on roof surfaces, to paint or spray waterproofing compound on surfaces and spread tar and gravel on roofs; manual dexterity to make placing and turning motions easily and quickly, and to use hand and power tools associated with roofing; eye-hand-foot co-ordination to balance on roofs, scaffolds or platforms while laying and securing shingles and metal panels or applying waterproofing and sealing compounds; physical strength to perform medium to heavy tasks frequently requiring lifting or carrying bundles of shingles, rolls of roofing and other materials up to ninety pounds in weight; agility to climb ladders and work from inclined roof surfaces; capacity to work for prolonged periods while stooping, bending or kneeling during the laying and fastening of shingles on large roof expanses; adaptability to working in situations where the individual is subject to physical injury by falling or slipping from roofs, ladders and other surfaces; adaptability to working in conditions of dampness, especially for waterproofer helpers, when spraying sealing compound on underground surfaces; adaptability to exposure to heat, and tar and asphalt fumes, while heating pitch and asphalt.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight years of general education; one to three months on-the-job training.

ADVANCEMENT POSSIBILITIES: Helpers in Cluster B may advance to appropriate occupations in Cluster A. Experienced workers with supervisory potential may advance to 8780-154 FOREMAN, ROOFERS AND WATERPROOFERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Those who acquire knowledge of costing may advance to estimators or may become self-employed as contractors.

TRANSFER POSSIBILITIES: Workers in Cluster B may transfer to occupations requiring similar skills in other construction work, for example, 8799-278 CONSTRUCTION HELPER. Roofers whose work involves sheet metal may find transfer possibilities to some occupations in Chapter 8333, SHEET-METAL WORKERS.

OCCUPATIONAL TITLES:

8787-126 ROOFER HELPER
8787-130 WATERPROOFER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	4 3	5	H-234	O-B3467	2	3-2	139	23

8791-A PIPEFITTING, PLUMBING AND RELATED OCCUPATIONS, N.E.C. 361, 381, 661, 681

WORK PERFORMED: This chapter includes occupations concerned with installing and repairing pipelines, plumbing systems and related equipment for distributing water, gas, steam, air, waste or other materials. Worker functions include: working to close tolerances when measuring and fitting piping, valves and fixtures for new installations or repairs; manipulating hand and power tools to cut, thread, solder and caulk types of pipes and fittings; compiling information from building plans, specifications and on-site inspections to determine layout, plumbing materials, equipment and labour required; and comparing completed work with specified standards. Work activities include: measuring, marking, cutting, threading and bending pipe; cutting openings in structures to accommodate piping; assembling piping and joining piping to fixtures; cementing, soldering, welding or caulking joints; repairing or replacing unserviceable pipes and plumbing; and testing plumbing and piping installations for leaks.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply lay-out, installation and joining techniques for various types of piping and plumbing systems; spatial perception to visualize plumbing and piping layouts from building plans, detailed drawings, work orders and oral instructions; form perception to discern pertinent detail when threading and assembling pipes, valves, fittings and fixtures; eye-hand-finger co-ordination to make precise movements quickly when cutting, threading, bending and joining pipe and fixtures; manual dexterity to move the hands easily and skilfully when assembling plumbing such as meters and pipes; strength to perform medium to heavy work requiring frequent lifting of equipment, pipe and fixtures weighing up to fifty pounds, and to raise ladders, or to cut, bend and join piping; ability to work in awkward positions; near visual acuity for close scrutiny of work, especially when checking for locations and causes of leaks or condition of valve seats and pipe threads; adaptability to both inside and outside environment while exposed to wet conditions from adverse weather and leaking plumbing; adaptability to physical hazards or injury such as cuts from sharp metal or slipping wrenches, burns from torches, falls from ladders or platforms and odors and fumes from old plumbing; numerical ability for workers who regularly make bills of materials and measure lengths and diameters of pipes and fittings requried; eye-hand-foot co-ordination to climb into or out of manholes and on ladders or scaffolds; agility to climb and balance on ladders and scaffolds.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; for 8791-110 PIPE FITTER, 8791-114 PLUMBER, 8791-118 PIPE FITTER, WELDING and 8791-122 GAS SERVICEMAN, a four to five-year apprenticeship program, usually provincially regulated, and which provides for periods of full-time attendance at provincial trade schools or a similar form of on-the-job training; completion of provincial certification requirements; for other occupations in this cluster, one to two years of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to occupations requiring higher skills within their individual cluster; Experienced workers with supervisory potential may also advance to 8780-146 FOREMAN, PIPE FITTERS, PLUMBERS AND RELATED WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Other workers, such as Plumbers, may become self-employed as sub-contractors or owners of their own establishments.

TRANSFER POSSIBILITIES: Some workers may advance to other occupations requiring similar skills within their individual cluster, or with limited additional training, to appropriate occupations in other chapters, for example, 8523-130 PIPE FITTER, RAILWAY CAR AND LOCOMOTIVE, 8523-122 PIPE FITTER, TURBINES, 8592-122 PIPE FITTER and 8592-166 PIPE FITTER HELPER.

OCCUPATIONAL TITLES:

8791-110 PIPE FITTER
8791-114 PLUMBER
8791-118 PIPE FITTER, WELDING
8791-122 GAS SERVICEMAN
8791-126 STEAM-MAIN SERVICEMAN
8791-130 GAS-MAIN AND LINE FITTER
8791-134 MAINTENANCE MAN, SEWER AND WATER MAINS

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	4	4	3	3	3	3	4	M-H2347	B467	4-3	8-6	190	0Y1
		4	4					4		4	5					19	

8791-B PIPEFITTING, PLUMBING AND RELATED OCCUPATIONS, N.E.C. 584, 684

WORK PERFORMED: This chapter includes occupations concerned with installing and repairing pipelines, plumbing systems and related equipment for distributing water, gas, steam, air, waste or other materials. Worker functions include: working to close tolerances when measuring and fitting piping, valves and fixtures for new installations or repairs; manipulating hand and power tools to cut, thread, solder and caulk various types of pipes and fittings; compiling information from building plans, specifications and on-site inspections to determine layout, plumbing materials, equipment and labour required; and comparing completed work with specified standards. Work activities include: measuring, marking, cutting, threading and bending pipe; cutting openings in structures to accommodate piping; assembling piping and joining piping to fixtures; cementing, soldering, welding or caulking joints; repairing or replacing unserviceable pipes and plumbing; and testing plumbing and piping installations for leaks.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply lay-out, installation and joining techniques for various types of piping and plumbing systems; spatial perception to visualize plumbing and piping layouts from building plans, detailed drawings, work orders and oral instructions; form perception to discern pertinent detail when threading and assembling pipes, valves, fittings and fixtures; eye-hand-finger co-ordination to make precise movements quickly when cutting, threading, bending and joining pipe and fixtures; manual dexterity to move the hands easily and skilfully when assembling plumbing such as meters and pipes; strength to perform medium to heavy work requiring frequent lifting of equipment, pipe and fixtures weighing up to fifty pounds, and to raise ladders, or to cut, bend and join piping; ability to work in awkward positions; near visual acuity for close scrutiny of work, especially when checking for locations and causes of leaks or condition of valve seats and pipe threads; adaptability to both inside and outside environment while exposed to wet conditions from adverse weather and leaking plumbing; adaptability to physical hazards or injury such as cuts from sharp metal or slipping wrenches, burns from torches, falls from ladders or platforms and odors and fumes from old plumbing.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education, one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to occupations requiring higher skills within their individual cluster or from Cluster B to A. Experienced workers with supervisory potential may also advance to 8780-146 FOREMAN, PIPE FITTERS, PLUMBERS AND RELATED WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Other workers, such as Plumbers, may become self-employed as sub-contractors or owners of their own establishments.

TRANSFER POSSIBILITIES: Some workers may advance to other occupations requiring similar skills within their individual cluster, or with limited additional training, to appropriate occupations in other chapters, for example, 8523-130 PIPE FITTER, RAILWAY CAR AND LOCOMOTIVE, 8523-122 PIPE FITTER, TURBINES, 8592-122 PIPE FITTER and 8592-166 PIPE FITTER HELPER.

OCCUPATIONAL TITLES:

8791-138 PIPE LAYER
8791-142 GAS-METER INSTALLER
8791-146 WATER-METER INSTALLER
8791-150 GAS-SERVICEMAN HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4 3	4	3 4	4	3	4	5	M-H34	B-46	3-2	5-3	19	Y02

8793-A STRUCTURAL-METAL ERECTORS 361, 381, 661, 684

WORK PERFORMED: This chapter includes occupations concerned with positioning and joining prefabricated structural-metal parts by bolting, screwing, riveting, or welding, to form or repair completed frameworks or structures for buildings, bridges, tanks or similar works. Worker functions include: working to close tolerances when positioning and aligning girders, plates and other structural parts; manipulating hand and power tools to fasten or join structural members together; and compiling information about quantity, size, shape and location of structural metal to be erected. Worker activities include: laying out reference points and dimensions on metal work; signalling hoist operator to raise and position units; and securing units in place using wrenches, power tools, pneumatic riveters or welding equipment.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply methods and techniques associated with erecting structural steel; eye-hand-finger co-ordination and manual dexterity to handle bolts, rivets, drift pins, tools and measuring instruments; eye-hand-foot co-ordination to climb ladders and structures and balance and walk on narrow walkways during construction operations; strength to perform heavy work, requiring lifting and handling of parts and hardware weighing up to one hundred pounds, and torquing nuts and bolts to specified foot-pounds; agility to work in awkward positions such as stooping and kneeling while reaching for and handling tools and components during the erection of structural metal; ability to give and receive verbal instructions or information against a background of loud, steady noise; near visual acuity to measure components and good field of vision to watch for hazards on worksite; adaptability to both inside and outside conditions while exposed to noise from the hammering or riveting of metal and to physical hazards such as falls from ladders, platforms or girders; numerical ability, for 8793-110 ORNAMENTAL -AND-MISCELLANEOUS METAL WORKER, to measure and mark layouts according to specifications; spatial perception to visualize assembly procedures from drawings and to judge relative positions when guiding structural members into position.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: nine to ten years of general education; a two to three-year apprenticeship program which may be provincially regulated; or two months to four years of on-the-job training, depending on the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers in this cluster, with supervisory potential may advance to 8780-150 FOREMAN, STRUCTURAL-METAL ERECTORS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations within the chapter that require similar basic skills or with limited additional training to appropriate occupations in other chapters, for example, 8337-118 BOILER-MAKER, ERECTION AND REPAIR or to 8796-134 STRUCTURAL-STEEL INSPECTOR.

OCCUPATIONAL TITLES:

8793-110	ORNAMENTAL-AND-MISCELLANEOUS METAL WORKER	8793-126	REINFORCING-IRON WORKER
8793-114	STRUCTURAL-STEEL ERECTOR	8793-130	METAL-BUILDING ASSEMBLER
8793-118	TANK BUILDER	8793-142	RECREATION-EQUIPMENT ERECTOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	4	4	3	4	3	3	5	H-234567	O-B56	3	7-3	910	OY8
	4	4	3	4	3	5	4			2						91	OY2

8793-B STRUCTURAL-METAL ERECTORS 664, 684, 687

WORK PERFORMED: This chapter includes occupations concerned with positioning and joining prefabricated structural-metal parts by bolting, screwing, riveting, or welding, to form or repair completed frameworks or structures for buildings, bridges, tanks or similar works. Worker functions include: working to close tolerances when positioning and aligning girders, plates and other structural parts; manipulating hand and power tools to fasten or join structural members together; and compiling information about quantity, size, shape and location of structural metal to be erected. Worker activities include: laying out reference points and dimensions on metal work; signalling hoist operator to raise and position units; and securing units in place using wrenches, power tools, pneumatic riveters or welding equipment.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply methods and techniques associated with erecting structural steel; eye-hand-finger co-ordination and manual dexterity to handle bolts, rivets, drift pins, tools and measuring instruments; eye-hand-foot co-ordination to climb ladders and structures and balance and walk on narrow walkways during construction operations; strength to perform heavy work, requiring lifting and handling of parts and hardware weighing up to one hundred pounds, and torquing nuts and bolts to specified foot-pounds; agility to work in awkward positions such as stooping and kneeling while reaching for and handling tools and components during the erection of structural metal; ability to give and receive verbal instructions or information against a background of loud, steady noise; near visual acuity to measure components and good field of vision to watch for hazards on worksite; adaptability to both inside and outside conditions while exposed to noise from the hammering or riveting of metal and to physical hazards such as falls from ladders, platforms or girders.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one to six months of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: With some additional training, workers in Cluster B may advance to other occupations within the cluster or in Cluster A. Experienced workers with supervisory potential may advance to 8780-150 FOREMAN, STRUCTURAL-METAL ERECTORS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers may transfer to other occupations within the chapter that require similar basic skills or with limited additional training to appropriate occupations in other chapters, for example, 8337-118 BOILER-MAKER, ERECTION AND REPAIR or to 8796-134 STRUCTURAL-STEEL INSPECTOR.

OCCUPATIONAL TITLES:

8793-134	REVETER, PNEUMATIC
8793-138	RIVETER, PORTABLE PINCH
8793-146	JOIST SETTER, ADJUSTABLE STEEL
8793-150	ORNAMENTAL-&-MISCELLANEOUS METAL WORKER HELPER
8793-154	RIVETER HELPER
8793-158	TANK-BUILDER HELPER
8793-162	STRUCTURAL-STEEL-ERECTOR HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	2	5	M-H23467	B-56	3-2	4-2	19	2Y0
			4			4				3						139	23

8795-B GLAZIERS

684, 687

WORK PERFORMED: This chapter includes occupations concerned with preparing and installing glass in buildings and furniture. Worker functions include: manipulating or handling tools, work aids and materials to cut, transport and install glass; compiling data from drawings and specifications to determine designs, material and dimensional requirements; and working precisely to specified tolerances and colours. Work activities include: tracing and cutting patterns; selecting glass of appropriate size, colour and type; measuring and marking outline or pattern on glass; cutting glass to size and shape; setting glass in frames, mouldings or sashes; bending and joining lead, copper or zinc framework around stained-glass sections; installing mirrors or structural glass on building surfaces; and bolting together parts of prefabricated glass units such as revolving doors and display cases.
APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply production glazing techniques, or to acquire the skills needed to assist structural or plate glass installers; spatial perception to determine relative position of moving or stationary objects while conveying windows or large sheets of glass; eye-hand co-ordination and finger dexterity to insert sealing compound, gaskets or channels in frames, or to accurately cut and drill mouldings; manual dexterity to fit and fasten glass in frames, or to attach hinges, handles or other hardware to glass doors; form perception to detect imperfections in glass panels; eye-hand-foot co-ordination and the ability to climb, balance, stoop, kneel or crouch when installing glass in buildings; physical capacity to perform medium to heavy work, requiring the handling of materials and units weighing up to one hundred pounds; adaptability to inside and outside work conditions, and to possible injuries such as cuts from glass or falls from ladders.
TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to nine years of general education; one to six months of on-the-job training.
ADVANCEMENT POSSIBILITIES: With additional training and experience, Glazier Helper in Cluster B may advance to Glazier. Experienced workers with supervisory potential may advance to 8780-126 FOREMAN, GLAZIERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile. Those who acquire knowledge of business practices may become self-employed as owners of their own establishments.
TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter are limited, but may be between shop glass work and outside installations such as store fronts with plate glass or double-insulated windows. Workers may also transfer to appropriate occupations requiring similar basic skills in other chapters; for example, 8373-170 GLASS POLISHER; 8373-182 GLASS-EDGER TENDER; 8373-162 GROOVE GRINDER; 8376-122 INSPECTOR, GLASS; and 8371-198 GLASS CUTTER, HAND.
OCCUPATIONAL TITLES:

8795-122 GLASS INSTALLER
8795-126 GLAZIER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	3	4	4	4	4	3	2	5	M-4	B-6	3-2	4-3	139	23Y
			5	4						5		H-234					

8796-A INSPECTING & TESTING OCCUPATIONS, CONSTRUCTION, EXCEPT ELECTRICAL 146, 264, 288

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the construction and maintenance of buildings, bridges, dams, highways, pipelines and other types of construction, except for electric power, light or wire communications. Worker functions include: analyzing data resulting from tests and examinations; compiling information into reports for engineers and project managers; manipulating surveying and measuring instruments; and handling tools and testing devices. Work activities include: conducting periodic examinations of work in progress at various stages of construction; inspecting work and testing materials being used in construction projects to ensure that specifications, building codes and other standards are met; verifying alignment, level and elevation of structures using surveyor's level and transit; examining mechanical installations, instrumentation, valves and fittings in refinery equipment, storage tanks and pipeline distribution systems; testing samples of sand and gravel to determine suitability for use in construction projects; and testing coating applied to pipelines.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand construction principles and techniques and applicable building codes and standards; verbal ability to understand and use technical terminology and express ideas clearly in written or oral form; numerical ability to perform arithmetic calculations quickly and accurately; spatial ability to visualize eventual size, shape and appearance of finished structures from drawings and specifications; form perception to detect defects when examining building workmanship for conformance to standards; ability to climb ladders and maintain body equilibrium when walking on narrow or slippery surfaces; agility to stoop, kneel, crouch or crawl when inspecting buildings, tunnels or excavations; capacity to extend the hands and arms in any direction to seize or grasp handholds when climbing around construction sites and to use measuring devices; near visual acuity to read surveying and measuring instruments; adaptability to working in environments where there is exposure to a variety of conditions such as water, mud, dirt, dust, noise, vibration and physical hazards; for 8796-114 CONSTRUCTION INSPECTOR and 8796-122 MASONRY INSPECTOR, colour discrimination to note slight variances in colours of materials.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; several years of experience as a qualified worker in construction and on-the-job training in quality-control and inspection work.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to appropriate occupations in Unit Group 8780, FOREMEN, OTHER CONSTRUCTION TRADES OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are limited, however with limited additonal training, some workers may transfer to other occupations requiring similar basic skills within their individual cluster.

OCCUPATIONAL TITLES:

8796-110	BUILDING-CONSTRUCTION INSPECTOR	8796-130	REINFORCED-CONCRETE INSPECTOR
8796-114	CONSTRUCTION INSPECTOR	8796-134	STRUCTURAL-STEEL INSPECTOR
8796-118	HIGHWAY INSPECTOR	8796-138	TUNNEL INSPECTOR
8796-122	MASONRY INSPECTOR	8796-142	LINE-LQCATE MAN
8796-126	PIPELINE-CONSTRUCTION INSPECTOR	8796-146	REFINERY-EQUIPMENT INSPECTOR
		8796-150	STEAM-UTILIZATION INSPECTOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	3	3	3	2	3	4	4	4	4	4	L-234567	B-456	4	8-7	715	09Y541
	3		2		3	4			3	5	5						
											3						

8796-B INSPECTING & TESTING OCCUPATIONS, CONSTRUCTION, EXCEPT ELECTRICAL 367, 384, 684

WORK PERFORMED: This chapter includes occupations concerned with quality-control activities in the construction and maintenance of buildings, bridges, dams, highways, pipelines and other types of construction, except for electric power, light or wire communications. Worker functions include: analyzing data resulting from tests and examinations; compiling information into reports for engineers and project managers; manipulating surveying and measuring instruments; and handling tools and testing devices. Work activities include: conducting periodic examinations of work in progress at various stages of construction; inspecting work and testing materials being used in constrction projects to ensure that specifications, building codes and other standards are met; verifying alignment, level and elevation of structures using surveyor's level and transit; examining mechanical installations, instrumentation, valves and fittings in refinery equipment, storage tanks and pipeline distribution systems; testing samples of sand and gravel to determine suitability for use in construction projects; and testing coatings applied to pipelines.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply instructions furnished in written or diagrammatic form; verbal ability to understand and use technical terminology and to communicate effectively with others, both orally and in writing; form perception to detect irregularities or defects in pipelines, terrain and equipment; manual dexterity to manipulate tools and test apparatus; near visual acuity to read test apparatus; adaptability to work situations in which there is exposure to fumes, odors, explosions and other hazards.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to eleven years of general education; one month to one year of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to appropriate occupations in Unit Group 8780, FOREMEN, OTHER CONSTRUCTION TRADES OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are limited, however, with limited additional training, some workers may transfer to other occupations requiring similar basic skills within their individual cluster.

OCCUPATIONAL TITLES:

8796-154	GAS-LEAK SURVEY MAN
8796-158	SAND AND GRAVEL TESTER
8796-162	GAS-METER INSPECTOR
8796-166	HOLIDAY-DETECTOR OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	3	4	4	4	4	5	5	L-47	I-B67	3	5-4	91	0Y
					4					4	4						

8798 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK, OTHER CONSTRUCTION TRADES

886, 887

WORK PERFORMED: This chapter includes occupations concerned with labouring and other elemental work in the erection, repair or demolition of buildings, bridges, dams, highways, electrical power installations and other works. Worker functions include: handling tools, implements and materials while performing routine tasks; and feeding materials into construction machines. Work activities include: loading and unloading construction trucks; loading rolls of glass fabric, felt paper or other materials onto pipe-wrapping machines; moving materials between work areas to supply other workers; mixing, pouring and spreading concrete; erecting and dismantling scaffolding and hoists; sorting, cleaning and piling salvaged materials; using simple machinery associated with construction, such as chain saws or pneumatic drills; trimming limbs from felled trees; and cutting brush from right-of-way.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and carry out simple instructions correctly and apply the elementary training required to perform construction duties; eye-hand-finger co-ordination and manual dexterity to load and unload construction materials, sort, clean and pile salvaged material, place barricades around construction sites, rig scaffolds and hoists, trim limbs from felled trees and pile and burn brush; eye-hand-foot co-ordination to climb ladders, scaffolding and ramps while conveying or carrying tools and materials; capacity to perform heavy to very heavy work requiring the lifting of objects weighing in excess of one hundred pounds and the frequent lifting or carrying of objects weighing in excess of fifty pounds; capacity to stoop, kneel, crouch or crawl when working around construction sites, loading trucks and carrying materials to work site; capacity to extend the hands and arms in any direction to seize, hold, grasp and turn tools such as shovels, chain saws and pneumatic drills; adaptability to working inside under controlled environmental conditions and outside where there is little effective protection against extremes of temperatures; adaptability to working in situations where there is constant or intermittent noise which may cause distractions resulting in injuries; adaptability to working in situations involving definite risks of bodily injury and possible permanent disability; adaptability to working in situations where fumes, odours, dust and poor ventilation are likely to cause bodily discomfort or possible injury.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: six to eight years of general education; on-the-job training ranging from a short demonstration to one month.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs and advancement is normally to higher skilled occupations in Minor Group 878/879, OTHER CONSTRUCTION TRADES OCCUPATIONS, for workers who demonstrate ability, interest and initiative. Experienced workers may also advance to 8780-134 FOREMAN, LABOURERS AND OTHER ELEMENTAL WORKERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities may be to other occupations within this chapter, or to occupations in labouring and elemental work in other chapters.

OCCUPATIONAL TITLES:

8798-110	PAPER LATCHER	8738-110T	LABOURER, ELECTRIC POWER AND WIRE COMMUNICATIONS
8798-114	CONSTRUCTION LABOURER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	4	4	5	H-VH234	O-B567	1	2	31	23
		5							3								

8799A-A ELEVATOR INSTALLERS AND REPAIRMEN

261, 280

WORK PERFORMED: This chapter includes occupations concerned with installing, adjusting, servicing and repairing elevators and escalators. Worker functions include: setting up and adjusting elevators and escalators according to factory specifications; analyzing data from drawings, specifications and tests to determine installation or repair requirements; working to close tolerances when laying out assemblies and aligning parts; and manipulating hand tools, power tools and special devices to install and test equipment. Work activities include: mounting motors, controls and associated equipment in buildings; installing elevator cars and cables; testing and adjusting entire assembly; locating and determining causes of malfunctions in electrical, hydraulic, electronic or mechanical systems; and disassembling defective units and repairing or replacing parts.

APTITUDES AND CAPACITIES: learning ability to acquire and apply a knowledge of the electrical and mechanical principles related to the design, construction, operation and repair of elevators; ability to interpret technical drawings and specifications; and reasoning ability to diagnose and correct causes of malfunctioning controls and equipment; spatial perception to visualize from drawings and specifications, the equipment to be adjusted, repaired or installed and the relative positioning of members and components that form the complete unit; form perception to detect signs of wear or defects in elevator components, to ensure safe operation of elevator systems; eye-hand-finger co-ordination and finger dexterity to connect wiring to electric motors and control panels and to handle tools, test equipment and other work aids; manual dexterity to move hands skilfully when repairing or installing parts or assembles; physical strength to lift materials and tools weighing up to fifty pounds; agility to climb and maintain balance on ladders and work platforms; capacity to work in awkward positions such as stooping, kneeling or crouching while reaching for and handling parts and tools; near visual acuity to read drawings and specifications or to install and adjust mechanisms and controls; colour vision to recognize colour-coded electrical wires and other parts; adaptability to situations where there is a possibility of injuries such as falls from heights and burns or shock from electric wires.

TRAINING AND ENTRY REQUIREMENTS: twelve to thirteen years of general education, preferably with emphasis on physics and electrical and electronic theory; a three to four year apprenticeship program, which normally includes periods of on-the-job training at factories of major elevator manufacturers and evening courses sponsored by some employers; completion of employer and union examination requirements.

ADVANCEMENT POSSIBILITIES: Workers may advance to the appropriate foreman occupation in the same work-field.

TRANSFER POSSIBILITIES: Workers may transfer to 8796-110 BUILDING-CONSTRUCTION INSPECTOR or to 1116-138 SAFETY INSPECTOR. Others may transfer to occupations concerned with estimating and sales of elevators or systems.

OCCUPATIONAL TITLES:

8799-110	ELEVATOR ADJUSTER
8799-114	ELEVATOR REPAIRMAN
8799-118	ELEVATOR CONSTRUCTOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	3	3	4	M-H2347	I6	4	8-7	910	OY1
				2													

8799B-A FURNACE INSTALLERS-AND-REPAIRMEN

WORK PERFORMED: This chapter includes occupations concerned with installing, repairing, cleaning and servicing furnaces, oil-burners and related equipment in residential, commercial and industrial establishments. Worker functions include: analyzing data obtained from drawings, specifications or examination at work site, to determine installation or repair requirements; working to close tolerances when laying out, positioning and connecting parts; manipulating hand and power tools; and handling firebrick, insulation, ducting, burners, controls, blowers and other furnace parts. Work activities include: measuring and marking reference points for positioning and erecting heating units; constructing foundations for equipment; installing air ducts, piping, vents and other components; testing and adjusting furnaces; locating and determining cause of trouble in malfunctioning heating units; replacing or repairing defective parts; and cleaning furnaces and related equipment.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to acquire and apply a knowledge of sheet metal ductwork and heating-unit installation and maintenance principles and procedures; reasoning ability to diagnose causes of malfunctioning units and controls; and ability to interpret technical drawings and specification; spatial perception to visualize, from drawings and specifications, the equipment to be installed or repaired and the positioning of parts or components that form the complete unit; form perception to visually detect proper adjustment of oil-burners and telltale indications of malfunctioning equipment; eye-hand-finger co-ordination and finger dexterity to install sheet-metal ducts, to connect wiring to motors, thermostats and other electrical control devices, and to manipulate small parts; manual dexterity to move hands skilfully when repairing or installing parts or assemblies; eye-hand-foot co-ordination to climb ladders and maintain balance while positioning and installing overhead ducts and wiring; physical strength to perform medium work which frequently involves lifting and carrying tools and material varying in weight from twenty to fifty pounds; agility, for some workers, to climb and balance on ladders when installing sheet-metal air ducts; capacity to stoop, crouch, kneel or reach while handling tools and parts; adaptability to working in situations where workers may sustain injuries such as cuts and burns.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; up to four years of apprenticeship or similar on-the-job training, normally combined with related experience as Helper; completion of examination requirements.

ADVANCEMENT POSSIBILITIES: Experienced workers, in Cluster A, with supervisory potential may advance to appropriate foreman occupation in the same work field. Those who acquire knowledge of business practices may also become self-employed and operate their own establishments.

TRANSFER POSSIBILITIES: Experienced workers in Cluster A may transfer to 1116-138 SAFETY INSPECTOR.

OCCUPATIONAL TITLES:

8799-122 FURNACE INSTALLER-AND-REPAIRMAN
8799-130 OIL-BURNER INSTALLER-AND-SERVICEMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	3	$\underline{3}$ $\underline{2}$	$\underline{3}$	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	$\underline{4}$	4	M-234	I-6	4	7	910	OY1

8799B-B FURNACE INSTALLERS-AND-REPAIRMEN

WORK PERFORMED: This chapter includes occupations concerned with installing, repairing, cleaning and servicing furnaces, oil-burners and related equipment in residential, commercial and industrial establishments. Worker functions include: analyzing data obtained from drawings, specifications or examination at work site, to determine installation or repair requirements; working to close tolerances when laying out, positioning and connecting parts; manipulating hand and power tools; and handling firebrick, insulation, ducting, burners, controls, blowers and other furnace parts. Work activities include: measuring and marking reference points for positioning and erecting heating units; constructing foundations for equipment; installing air ducts, piping, vents and other components; testing and adjusting furnaces; locating and determining cause of trouble in malfunctioning heating units; replacing or repairing defective parts; and cleaning furnaces and related equipment.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the basic techniques of furnace or oil burner installation and maintenance, and to carry out instructions; eye-hand co-ordination to lift and hold parts into correct position for securing by installer; manual dexterity to move the hands easily when using tools nad other work aids; strength to perform medium to heavy work which frequently involves carrying materials varying in weight from twenty to one hundred pounds; ability to stoop, kneel, crouch, or each while handling parts and tools.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; two weeks to two months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Workers in Cluster B who acquire additional training and experience may advance to occupations in Cluster A.

TRANSFER POSSIBILITIES: Transfer possibilities for workers may be directly related to the amount of experience acquired, but would normally be to appropriate occupations requiring comparable skills in Minor Group 878/879, OTHER CONSTRUCTION TRADES OCCUPATIONS.

OCCUPATIONAL TITLES:

8799-298	FURNACE-INSTALLER-AND-REPAIRMAN HELPER
8799-302	OIL-BURNER INSTALLER-AND-SERVICEMAN HELPER
8799-318	FURNACE CLEANER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	4	5	M-H34	I	2	3-2	139	23Y
							3									31	23

8799C-A COMMERCIAL AND INDUSTRIAL AIR-CONDITIONING AND REFRIGERATION MECHANICS

WORK PERFORMED: This chaper includes occupations concerned with installing, servicing and repairing commercial and industrial air-conditioning and refrigeration systems. Worker functions include: working to close tolerances to lay out reference points for installation of system components, and to adjust equipment for optimum performance; manipulating hand and power tools and handling parts to install, repair or replace components such as motors, controls, switches, compressors and water-absorption pads; analyzing data relative to systems' performance to determine nature of malfunctions; and comparing appearance of parts and functional characteristics of components with specified standards to determine flaws and extent of wear. Work activities include: installing or replacing components; drilling holes; screwing, bolting, riveting or welding parts together; cutting, bending, threading and connecting tubing; pumping gas or fluid into systems; and dismantling malfunctioning systems to facilitate repair.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the operation of industrial and commercial refrigeration and air-conditioning systems and reasoning and judgment to install and repair their structural and functional components; spatial perception to interpret technical diagrams, specifications or established plans for installation of systems or units; form perception to examine components for defects or excessive wear and to detect poor electrical connections; eye-hand-finger co-ordination and manual dexterity to assemble structural framework by riveting, welding and brazing; and installing and repairing mechanical components using hand tools; finger dexterity to nimbly manipulate small objects and to adjust controls for optimum performance of refrigeration or air-conditioning systems; ability to communicate orally when directing sub-contractors or helpers; near visual acuity to read gauges, dials, instruments and measuring devices; physical capacity to perform medium to heavy work and to reach for and handle a variety of parts, equipment and materials; ability to climb stairs and maintain balance on ladders, and to stoop, kneel and crouch to work in awkward positions; adaptability to a variety of climatic conditions when working outside and possible exposure to refrigerant, which may cause some discomfort.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: nine to ten years of general education; a four to five-year apprenticeship program, usually provincially regulated; completion of certification requirements.

ADVANCEMENT POSSIBILITIES: Experienced workers, with supervisory potential may advance to lead hand or foreman in the same work field.

TRANSFER POSSIBILITIES: Because of specialization, direct transfer opportunities for workers in this chapter are limited, but possibilities may be to appropriate occupations requiring similar basic skills in repair or maintenance work on similar equipment.

OCCUPATIONAL TITLES:

8/33-114T AIR-CONDITIONING MECHANIC, COMMERCIAL
8533-118T REFRIGERATION MECHANIC
8733-134T INSTALLER-REPAIRMAN, EVAPORATIVE COOLER

QUALIFICATIONS PROFILE:

APT:	G	V-N		S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	3	3	4	M-H23457	I-B6	4-3	7-6	910	OY1
			4	2						4	5						

8799C-B COMMERCIAL AND INDUSTRIAL AIR-CONDITIONING AND REFRIGERATION MECHANICS 684, 687

WORK PERFORMED: This chapter includes occupations concerned with installing, servicing and repairing commercial and industrial air-conditioning and refrigeration systems. Worker functions include: working to close tolerances to lay out reference points for installation of system components, and to adjust equipment for optimum performance; manipulating hand and power tools and handling parts to install, repair or replace components such as motors, controls, switches, compressors and water-absorption pads; analyzing data relative to systems' performance to determine nature of malfunctions; and comparing appearance of parts and functional characteristics of components with specified standards to determine flaws and extent of wear. Work activities include: installing or replacing components; drilling holes; screwing, bolting, riveting or welding parts together; cutting, bending, threading and connecting tubing; pumping gas or fluid into systems; and dismantling malfunctioning systems to facilitate repair.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to acquire the knowledge and skills needed to help refrigeration or air-conditioning mechanics; spatial perception to read instructions or diagrams and visualize positions and functions of mechanical or structural components; eye-hand co-ordination and manual dexterity to accurately cut and thread pipe, or to install clamps, brackets or other parts; finger dexterity to nimbly manipulate small parts such as bolts, screws, nuts and washers; physical capacity to perform medium to heavy work and to reach for and handle a variety of parts, equipment and materials; ability to climb stairs and maintain balance on ladders, and to stoop, kneel and crouch to work in awkward positions; adaptability to a variety of climatic conditions when working outside and possible exposure to refrigerant, which may cause some discomfort.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; up to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With experience and additional training, workers in Cluster B may advance to higher skilled occupations in Cluster A.

TRANSFER POSSIBILITIES: Because of specialization, direct transfer opportunities for workers in this chapter are limited, but possibilities may be to appropriate occupations requiring similar basic skills in repair or maintenance work on similar equipment.

OCCUPATIONAL TITLES:

8733-138T	AIR-CONDITIONING-MECHANIC HELPER, COMMERCIAL
8533-234T	REFRIGERATION-MECHANIC HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	3	5	4	4	3	4	5	M-H234	I-B67	3-2	3	139	23Y
					4												23

8799D-A FLOOR SURFACERS

461, 481

WORK PERFORMED. This chapter includes occupations concerned with sanding and finishing wooden floors and installing and repairing carpeting, linoleum, tile and other types of floor covering. Worker functions include: measuring floor surfaces and computing amount of material required; working to close tolerances when laying out, cutting and fitting floor coverings; manipulating measuring and cutting tools; and operating sanding machines, edgers and polishers to prepare or finish floors. Work activities include: examining floors to ensure they are clean, smooth and level; cutting floor covering to minimize wastage; securing material into position using adhesive, tacks or tape; repairing damaged floor coverings; filling holes, cracks or other irregularities in wooden floor-surface with putty or mastic; and sanding and polishing floors.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the physical properties of carpets, tiles, linoleum and parquet flooring and to acquire the techniques and skills needed to lay out, cut, install or repair various floor coverings; numerical ability to make accurate calculations when computing quantities of floor covering or other materials; spatial perception to visualize the required cutting, fitting and placing of materials; form perception to measure and cut covering to size and to detect imperfections; eye-hand co-ordination and finger dexterity to make precise movements when laying tiles or parquet pieces or when joining carpet sections, using hand or machine stitcher; manual dexterity to skilfully use shears, knives and tack hammers; near visual acuity to cut materials accurately, and colour vision to ensure proper match of colour and pattern; physical capacity to perform medium to heavy work, and to reach for and handle equipment and materials; capacity to kneel, crawl and crouch when cutting and fitting floor covering or when hand scraping floor edges and confined areas.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; six months to two years of on-the-job training and related experience, usually as Helper.

ADVANCEMENT POSSIBILITIES: Experienced workers in Cluster A with supervisory potential may advance to appropriate foreman occupations in the same work field.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are mainly limited to other occupations requiring similar skills within the chapter.

OCCUPATIONAL TITLES:

8799-154	CARPET LAYER
8799-158	FLOOR LAYER
8799-170	CARPET CUTTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	3	3	3	4	3	4	3	4	4	M-H347	I	3	6-5	190	OY
			4	4													

8799D-B FLOOR SURFACERS 664, 684

WORK PERFORMED: This chapter includes occupations concerned with sanding and finishing wooden floors and installing and repairing carpeting, linoleum, tile and other types of floor covering. Worker functions include: measuring floor surfaces and computing amount of material required; working to close tolerances when laying out, cutting and fitting floor coverings; manipulating measuring and cutting tools; and operating sanding machines, edgers and polishers to prepare or finish floors. Work activities include: examining floors to ensure they are clean, smooth and level; cutting floor covering to minimize wastage; securing material into position using adhesive, tacks or tape; repairing damaged floor coverings; filling holes, cracks or other irregularities in wooden floor-surface with putty or mastic; and sanding and polishing floors.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the techniques of sanding and finishing wooden floors, or to acquire the skills needed to help in floor covering, sanding or finishing operations; form perception to detect cracks, holes, indentations or other irregularities on floor surfaces; eye-hand co-ordination to observe and feel sanded areas for smoothness, or to trim and cut carpets or tiles; manual dexterity to move the hands easily and skilfully when maneouvering sanding or polishing machines; adaptability to considerable noise from sanders or polishers, and exposure to fumes and odors from adhesives, and dusts while sanding floors; physical capacity to perform medium to heavy work, and to reach for and handle equipment and materials; capacity to kneel, crawl and crouch when cutting and fitting floor covering or when hand scraping floor edges and confined areas.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight years of general education; from one to six months of on-the-job training and experience.

ADVANCEMENT POSSIBILITIES: With experience and additional training, workers in Cluster B may advance to occupations in Cluster A.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are mainly limited to other occupations requiring similar skills within the chapter.

OCCUPATIONAL TITLES:

8799-202	FLOOR SANDER-AND-FINISHER
8799-262	FLOOR COVERER HELPER
8799-310	FLOOR-SANDER-AND-FINISHER HELPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	5	5	M-H34	I-57	3-2	5-2	139	20Y
	3									5						31	23Y

9111-A AIR PILOTS, NAVIGATORS AND FLIGHT ENGINEERS

263, 264

WORK PERFORMED: This chapter includes occupations concerned with piloting or navigating fixed-wing or rotary-wing aircraft. Worker functions include: piloting aircraft during take-off, in flight and when landing; examining and evaluating flight data; computing geographical positions, effects of weather on duration of flight, fuel remaining and other factors; co-ordinating en-route navigational information to obtain in-flight directions and course corrections; and communicating with ground and air-traffic control stations. Work activities include: preparing flight plans and ensuring aircraft is ready for flight; conducting checks of instruments and controls; maintaining flight logs and completing trip reports; and operating equipment provided for special purposes such as aerial photography, surveying and spraying or dusting.

APTITUDES AND CAPACITIES: Workers in this chapter require: Air Pilots and Flight Engineers: learning ability to understand and apply a knowledge of aeronautical, meteorological and navigational principles and to acquire the skills needed to fly an aircraft; verbal ability to understand and use technical vocabularies such as those found in aircraft pilots' manuals, charts and weather reports and to communicate effectively with other personnel; spatial perception to visualize speed and distance factors in relation to precise take-off and landing limits and procedures, and when airborne, to visualize relationship of own aircraft to other aircraft; form perception to note slight differences in gauge readings and indicator positions; eye-hand-finger co-ordination, finger and manual dexterity, and eye-hand-foot co-ordination to make a variety of co-ordinated movements quickly and accurately while flying the aircraft; physical capacity, agility and stamina, to climb into and out of confined flight deck spaces, remain seated for extended periods and maintain balance during periods of air turbulence; capacity to articulate clearly and quickly when communicating with air-traffic control personnel or other members of the flight crew; good hearing to receive communications and to detect slight changes in aircraft sounds; near-and-far visual acuity, depth perception and accommodation to fly aircraft and make observations; colour vision to recognize indicators and navigational aids; capacity to work in confined areas while exposed to continuous noise, depending upon type of aircraft; adaptability to hazardous conditions normally prevalent when piloting aircraft in low-flying operations such as utilities inspections, crop spraying or dusting, and water bombing.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: for Air Pilots: no specified educational requirements, but preference may be for high school graduation at the university entrance level, and completion of a two to three-year course in aeronautics at a community college; completion within one year of commencement, a full or part-time commercial pilot's course at an approved flying club or school; completion of examination requirements in accordance with procedures and standards approved by the Ministry of Transport. for Helicopter Pilots: similar requirements to those of Air Pilots, except that flying experience and training will have been acquired on helicopter type aircraft.

ADVANCEMENT POSSIBILITIES: Advancement possibilities for workers in this chapter vary with the type of licence held, for example, Commercial Pilot Licence, Senior Commercial Pilot Licence and Airline Pilot Licence. These licences may be endorsed for additional qualifications or ratings as the holder becomes more qualified; for example, Instrument Rating, Instructor Rating, and Multi-Engine Endorsement. Most occupations in this chapter are of a career-type and as workers increase their seniority and experience they obtain a better selection of routes, schedules and more sophisticated types of aircraft, with increased remuneration. Those with supervisory potential and administrative ability may advance to 9110-114 SUPERVISOR, AIRPILOTS AND NAVIGATORS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some pilots who acquire knowledge of business practices may become self-employed as operators of flying schools, air taxis or other aerial services. Others may transfer to administrative positions in aircraft manufacturing and government aviation agencies.

OCCUPATIONAL TITLES:

9111-110 TEST PILOT
9111-114 AIRPLANE-PATROL PILOT
9111-118 AIRPLANE PILOT
9111-122 EXECUTIVE PILOT
9111-126 HELICOPTER PILOT
9111-130 PILOT-NAVIGATOR, PHOTOGRAMMETRY
9111-134 SPRAY PILOT
9111-136 SECOND OFFICER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	2	1	2	3	2	3	3	3	4	L4567	I56	5	8-7	91	9081
	1			2													

WORK PERFORMED: This chapter includes occupations concerned with piloting or navigating fixed-wing or rotary-wing aircraft. Worker functions include: piloting aircraft during take-off, in flight and when landing; examining and evaluating flight data; computing geographical positions, effects of weather on duration of flight, fuel remaining and other factors; co-ordinating en-route navigational information to obtain in-flight directions and course corrections; and communicating with ground and air-traffic control stations. Work activities include: preparing flight plans and ensuring aircraft is ready for flight; conducting checks of instruments and controls; maintaining flight logs and completing trip reports; and operating equipment provided for special purposes such as aerial photography, surveying and spraying or dusting.

APTITUDES AND CAPACITIES: Workers in this chapter require: NAVIGATORS: learning ability to understand and apply navigational, meteorological and aeronautical principles and procedures; verbal ability to understand and use technical terminology found in navigational manuals, meteorological charts and weather reports and to communicate effectively with other personnel; numerical ability to a high degree, to make quick and accurate calculations from a variety of navigational data received from electronic aids and celestial observations; spatial perception to visualize the relationship of the moving aircraft to geographical positions, speed and distance factors, and to plot courses; form perception to read graphic representations on charts and maps; clerical perception to accurately read words, symbols and numbers, and to avoid perceptual mistakes in mathematical compilations and navigational computations; physical capacity, agility and stamina, to climb into and out of confined flight deck spaces, remain seated for extended periods and maintain balance during periods of air turbulence; capacity to articulate clearly and quickly when communicating with air-traffic control personnel or other members of the flight crew; good hearing to receive communications and to detect slight changes in aircraft sounds; near-and-far visual acuity, depth perception and accommodation to fly aircraft and make observations; colour vision to recognize indicators and navigational aids; capacity to work in confined areas while exposed to continuous noise, depending upon type of aircraft; adaptability to hazardous conditions normally prevalent when piloting aircraft in low-flying operations such as utilities inspections, crop spraying or dusting, and water bombing.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: for Navigators: high school graduation, with emphasis on mathematics and science; a one to two-year company sponsored training course and on-the-job training which normally includes the number of flight hours specified as the navigation experience requirement; completion of examination requirements in accordance with procedures and standards approved by the Ministry of Transport.

ADVANCEMENT POSSIBILITIES: Advancement possibilities for workers in this chapter vary with the type of licence held, for example, Commercial Pilot Licence, Senior Commercial Pilot Licence and Airline Pilot Licence. These licences may be endorsed for additional qualifications or ratings as the holder becomes more qualified; for example, Instrument Rating, Instructor Rating, and Multi-Engine Endorsement. Most occupations in this chapter are of a career-type and as workers increase their seniority and experience they obtain a better selection of routes, schedules and more sophisticated types of aircraft, with increased remuneration. Those with supervisory potential and administrative ability may advance to 9110-114 SUPERVISOR, AIR PILOTS AND NAVIGATORS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some Pilots who acquire knowledge of business practices may become self-employed as operators of flying schools, air taxis or other aerial services. Others may transfer to administrative positions in aircraft manufacturing and government aviation agencies.

OCCUPATIONAL TITLES:

9111-138 NAVIGATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	1	2	2	2	4	3	4	4	4	S4567	I5	5	6	91	Y018

9113-A AIR TRANSPORT OPERATING SUPPORT OCCUPATIONS 162, 168

WORK PERFORMED: This chapter includes occupations concerned with providing direct ground support to air transport operations. Worker functions include: co-ordinating and controlling the movement of aircraft to provide maximum safety and to minimize delays; analyzing and compiling weather reports and other flight information; communicating by voice with aircraft crews, ground crews or other supporting units; and driving aircraft-servicing vehicles. Work activities include: evaluating meteorological, navigational and other information to determine optimum route, altitude and other factors; briefing flight crews and authorizing flights; preparing or reviewing flight plans, flight logs or other reports; controlling air traffic by radio during landing, take-off and en-route, and operating or monitoring radio and navigation aids to provide pilots with essential information; controlling movement of ground traffic on runways and taxiways; alerting emergency personnel; preparing schedules for aircraft or flight crews; transmitting, receiving and logging radio messages; loading or unloading freight and luggage; replenishing aircraft fuel, water and other supplies and cleaning or providing other facilities to service aircraft.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply air traffic control procedures and regulations, and to understand the operational characteristics of various aircraft, and reasoning ability to make quick, accurate and independent judgments and decisions; verbal ability to quickly and accurately comprehend graphic, written, or oral instructions and to speak in a concise, well-organized manner when communicating operational or technical information by radio, or when preparing written reports; numerical ability to calculate course, speed, distance, fuel and endurance problems, changes in arrival and departure times, and allowable take-off and landing weights, quickly and accurately; spatial perception to visualize and maintain a mental picture of a constantly changing air-traffic control situation; clerical perception to keep accurate records and to detect errors in schedules or tabulations; eye-hand-finger co-ordination to make precise movements when operating electronic equipment; physical capacity to perform light work while remaining seated or standing during extended periods of mental concentration and stress; capacity to speak clearly and concisely when communicating with aircraft or other air traffic control stations; good visual acuity, both near and far, good depth perception, accommodation and colour vision.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: secondary school graduation or its equivalent; a two-year training program at a Ministry of Transport teaching establishment, and one or more years of on-the-job training and related experience; completion of Ministry of Transport licensing requirements; for 9113-114 FLIGHT DISPATCHER, four or more years of experience in airline operating occupations.

ADVANCEMENT POSSIBILITIES: Advancement for workers in this chapter is normally limited to positions of increased responsibility in the same work field; for example, air traffic control occupations advance from Ground Controller to Airport Controller, Terminal Controller and Area Controller. Experienced workers with supervisory ability may advance to 9110-110 FOREMAN, AIR TRANSPORT OPERATING SUPPORT OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Many occupations in this chapter are career-type positions, and transfer possibilities are normally between various airline companies and government agencies. Some workers in lesser skilled occupations may transfer with some additional training, to other occupations requiring similar skills, in operations support or sales department of airlines.

OCCUPATIONAL TITLES:

9113-110 AIR-TRAFFIC CO-ORDINATOR	9113-118 AIR-TRAFFIC CONTROLLER
9113-114 FLIGHT DISPATCHER	

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	2 3	3	3	4	4	4	5	4	S-L4567	I	4	8-7	92	45918

9113-B AIR TRANSPORT OPERATING SUPPORT OCCUPATIONS 268, 364, 368

WORK PERFORMED: This chapter includes occupations concerned with providing direct ground support to air transport operations. Worker functions include: co-ordinating and controlling the movement of aircraft to provide maximum safety and to minimize delays; analyzing and compiling weather reports and other flight information; communicating by voice with aircraft crews, ground crews or other supporting units; and driving aircraft-servicing vehicles. Work activities include: evaluating meteorological, navigational and other information to determine optimum route, altitude and other factors; briefing flight crews and authorizing flights; preparing or reviewing flight plans, flight logs or other reports; controlling air traffic by radio during landing, take-off and en-route, and operating or monitoring radio and navigation aids to provide pilots with essential information; controlling movement of ground traffic on runways and taxiways; alerting emergency personnel; preparing schedules for aircraft or flight crews; transmitting, receiving and logging radio messages; loading or unloading freight and luggage; replenishing aircraft fuel, water and other supplies and cleaning or providing other facilities to service aircraft.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability and reasoning ability to prepare aircraft schedules and personnel shift-work rosters and to apply established procedures to work situations; verbal ability to orally communicate technical or operational information and to prepare written reports and schedules; numerical ability to calculate flight data such as time of arrival and departure, fuel requirements and allowable take-off and landing weights; clerical perception to keep accurate records and to avoid perceptual errors in tabulations or schedules; physical capacity to perform light work such as reaching for maps, reports and files, fingering typewriter keyboards or operating controls of electronic equipment and preparing schedules and reports; capacity to speak clearly and hear easily when communicating with flight crews and other personnel.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to eleven years of general education; for 9113-122 AIRLINE-RADIO OPERATOR, a six-month company sponsored course in equipment operation and regulations and procedures, and six months to one year of on-the-job training; completion of Ministry of Transport licensing requirements; for other occupations, three months to two years of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: Advancement for workers in this chapter is normally limited to positions of increased responsibility in the same work field; for example, air traffic control occupations advance from Ground Controller to Airport Controller, Terminal Controller and Area Controller. Experienced workers with supervisory ability may advance to 9110-110 FOREMAN, AIR TRANSPORT OPERATING SUPPORT OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Many occupations in this chapter are career-type positions, and transfer possibilities are normally between various airline companies and government agencies. Some workers in lesser skilled occupations may transfer with some additional training, to other occupations requiring similar skills, in operations support or sales department of airlines.

OCCUPATIONAL TITLES:

9113-122	AIRLINE-RADIO OPERATOR	9113-130	FLIGHT-DISPATCH CLERK
9113-126	SCHEDULE ANALYST	9113-134	CREW SCHEDULER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	4	4	3	4	4	4	5	5	S-56	I	4-3	6-3	32	OY5
		4				2											

9131 - LOCOMOTIVE ENGINEERS AND FIREMEN

363, 663, 683

WORK PERFORMED: This chapter includes occupations concerned with operating railway locomotives to transport freight and passengers, and to move locomotives within yards and servicing and repair areas. Worker functions include: compiling and interpreting data from train orders, radio-telephone communications, signals, railway regulations and maintenance reports to conduct train activities safely and efficiently; operating throttle, air brakes and other controls to start, stop and regulate the speed of locomotives; observing train movements and railway track to ensure safe operations; and speaking to or signalling members of train crews or traffic-control personnel to give or receive information concerning stops, delays and traffic. Work activities include: inspecting locomotives before and after runs to detect wear, damage or defects; testing electrical or mechanical units; and ensuring that fuel, water and sand supplies are adequate.

APTITUDES AND CAPACITIES: Locomotive Engineers and Firemen require: learning ability to understand and apply railway procedures, rules and regulations and to operate locomotives safely and efficiently; spatial perception to visualize the relationship of moving train to other objects, to judge distances and to visualize the proper functioning of all train and track systems; form perception to visually inspect equipment for wear or defects; eye-hand co-ordination and manual dexterity to move controls rapidly and accurately in response to visual signals; eye-hand-foot co-ordination to maintain balance on moving train; physical capacity and agility to climb and descend ladders and walk over and around obstacles; good hearing to discriminate between genuine signals and extraneous noise; near visual acuity to note slight changes in temperatures, pressures and other factors indicated by gauges and indicators; good colour vision to recognize coloured signals or indicator lights; far visual acuity and depth perception; adaptability to work while exposed to continuous monotonous sounds and intermittent noises of diesel engine, braking systems and loud train signals.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: nine to eleven years of general education; six months to three years of on-the-job training, depending on the occupation.

ADVANCEMENT POSSIBILITIES: With experience and additional training and self-study courses, Locomotive Firemen may advance to Locomotive Engineers. Newly appointed Locomotive Engineers normally start by being placed on the "spare list" and it may take several years before he receives regular assignments. Advancement is normally to better hours of work, better runs and increased remuneration. A few with supervisory potential may advance to occupations in Unit Group 9130, FOREMEN, RAILWAY TRANSPORT OPERATING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possiblities are limited and locomotive engineers usually remain in their occupation for their entire careers.

OCCUPATIONAL TITLES:

9131-110	LOCOMOTIVE ENGINEER	9131-118	LOCOMOTIVE FIREMAN
9131-114	YARD ENGINEER	9131-122	HOSTLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	4	4	4	4	3	4	4	L2467	I5	4-3	7-4	913	YO
		3	3		3				4								YO2

9133-A CONDUCTORS AND BRAKEMEN, RAILWAY

137, 168

WORK PERFORMED: This chapter includes occupations concerned with the enroute operation of passenger and freight trains; maintaining efficiency of railway cars and equipment during runs; and making and breaking up trains in railway or industrial yards. Worker function include: co-ordinating data from train orders, schedules and other instructions to direct train movements; supervising activities of train crew; signalling and talking to crew members or passengers to receive or dispense information; and manipulating levers, valves and other devices to control heating, ventilating and air-conditioning systems, couple or uncouple cars, open and close track switches, and operate brake hand-wheels. Work activities include: inspecting railway cars and equipment for serviceability and cleanliness; assisting passengers boarding or leaving trains; checking storage of passengers' baggage in luggage racks to avoid accidents; collecting fares and tickets; patrolling train during run to detect irregularities and observing exterior of train for overheated wheel bearings, dragging equipment or insecure loads; directing or setting out warning signals during unscheduled stops to warn approaching trains; making minor emergency repairs; and preparing reports and keeping records.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand train orders and operating procedures and regulations, and to reason and make judgments concerning action required to safely and efficiently maintain operating schedules; verbal ability to understand time-tables, switching orders and other written or oral instructions and to communicate effectively with train crew or passengers; numerical ability for 9133-110 CONDUCTOR, PASSENGER TRAIN, to rapidly calculate change from customers' payments; clerical perception to extract pertinent information from train schedules and orders and to avoid computational errors; eye-hand-foot co-ordination to maintain balance on erratically moving cars; physical capacity to walk, remain standing and maintain balance for extended periods of time, climb steps, and lift and carry weights up to twenty pounds; capacity to extend arms when reaching for or placing hand baggage in overhead racks and when making arm signals; capacity to communicate clearly with passengers and crew; near and far visual acuity and colour vision; adaptability to working both inside and outside while exposed to continuous noise and vibration from moving trains; adaptability to conditions where there is a variety of physical hazards such as falls, collisions and derailments.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: nine to eleven years of general education; two to four years of previous experience as a brakeman; up to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for experienced workers is normally to occupations requiring higher responsibilities within the chapter. Advancement is usually from freight yards to freight trains and then passenger trains. A few experienced conductors with supervisory potential may advance to appropriate occupations in Unit Group 9130, FOREMEN, RAILWAY TRANSPORT OPERATING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities are limited and conductors usually remain in their occupations for their entire careers.

OCCUPATIONAL TITLES:

9133-110 CONDUCTOR, PASSENGER TRAIN
9133-114 CONDUCTOR, ROAD FREIGHT
9133-118 CONDUCTOR, YARD

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	3	4	4	4	4	4	L4567	B56	4	7-6	21	4051
			3													1	405

9133-B CONDUCTORS AND BRAKEMEN, RAILWAY

WORK PERFORMED: This chapter includes occupations concerned with the enroute operation of passenger and freight trains; maintaining efficiency of railway cars and equipment during runs; and making and breaking up trains in railway or industrial yards. Worker function include: co-ordinating data from train orders, schedules and other instructions to direct train movements; supervising activities of train crew; signalling and talking to crew members or passengers to receive or dispense information, and manipulating levers, valves and other devices to control heating, ventilating and air-conditioning systems, couple or uncouple cars, open and close track switches, and operate brake hand-wheels. Work activities include: inspecting railway cars and equipment for serviceability and cleanliness; assisting passengers boarding or leaving trains; checking storage of passengers' baggage in luggage racks to avoid accidents; collecting fares and tickets; patrolling train during run to detect irregularities and observing exterior of train for overheated wheel bearings, dragging equipment or insecure loads; directing or setting out warning signals during unscheduled stops to warn approaching trains; making minor emergency repairs; and preparing reports and keeping records.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand train orders, company rules and regulations and reasoning ability to recognize indications of defects or abnormal conditions; form perception to examine equipment for signs of wear or defects; eye-hand co-ordination and manual dexterity to move hands easily and quickly when operating switches and brake wheels, connecting or disconnecting air hoses, coupling or uncoupling cars, and making minor emergency repairs to journal boxes or switches; eye-hand-foot co-ordination to climb ladders of moving trains, maintain balance on erratically moving trains, maintain balance on erratically moving decks, make arm signals to other workers and to operate brake wheels in response to signals; physical capacity and agility to climb ladders, walk and maintain balance on moving cars and to lift and carry weights up to fifty pounds; agility to work in awkward positions such as stooping, crouching or kneeling when inspecting or making minor repairs to couplings, air hoses and journal boxes; capacity to speak clearly when communicating with passengers and other workers; good vision, depth perception and colour vision; adaptability to both inside and outside working conditions while exposed to almost continuous noise and vibration from a moving train; adaptability to a variety of physical hazards such as possibility of falls, collision or derailment and close proximity to moving trains.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to nine years of general education; up to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement for experienced workers is normally to occupations requiring higher responsibilities within the chapter, for example, with experience and additional training, brakemen may advance to conductors. Advancement is usually from freight yards to freight trains and then passenger trains.

TRANSFER POSSIBILITIES: Transfer possibilities are limited and conductors usually remain in their occupations for their entire careers.

OCCUPATIONAL TITLES:

9133-122 BRAKEMAN, PASSENGER TRAIN
9133-126 BRAKEMAN, ROAD FREIGHT
9133-130 BRAKEMAN, YARD

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	4	4	4	4	3	3	4	M234567	B56	3-2	4-3	321	20
	4								4	4						31	23

9135-A RAILWAY TRANSPORT OPERATING SUPPORT OCCUPATIONS 167, 168

WORK PERFORMED: This chapter includes occupations concerned with providing direct support to railway transport operations. Worker functions include: co-ordinating information from train orders, schedules, movement charts or location panel-board and directing railway traffic on specified section of railway; operating equipment that controls railway switches and signals; compiling, copying or comparing data concerning the identification, location, requirement, assignment, movement, routing or destination of rolling stock; talking with or signalling operating crews and other personnel; tending turntables and switching equipment; and handling fuel and water replenishment and materials. Work activities include: reading train orders and schedules to become familiar with schedules runs, destinations, priorities and times of arrival and departure; preparing duty-roster schedule and notifying personnel of their assignments; monitoring panelboard to determine location of trains or charting movement of trains or graph or chart; attaching identification labels to railway cars; and performing minor maintenance and cleaning duties.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand procedure and regulations to operate a centralized-traffic-control system and reasoning ability to make quick and accurate judgments when switching trains to sidings or routing fast trains around slower ones; verbal ability to read and understand technical manuals and interpret panel displays, traffic and company regulations and orally communicate technical or operational information; spatial perception to distinguish and select correct positions of keys, switches and buttons on control board; clerical perception to keep accurate records and detect errors in schedules; physical capacity to reach for and move keys, buttons and other control devices that activate train switches and signals to reroute, stop or control speed of trains; capacity to hear and talk clearly when communicating with train crews and station agents by radio; good eyesight and colour vision.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; six to nine months of on-the-job training and four to five years of previous experience in other occupations that provide direct support to railway operations.

ADVANCEMENT POSSIBILITIES: Workers in this chapter at the elemental level normally advance to more demanding occupations within the chapter as they acquire experience, knowledge and seniority. Newly qualified workers are normally placed on the "spare list" and given temporary assignments until they acquire sufficient seniority for regular assignments. Those with supervisory potential may advance to appropriate occupations in Unit Group 9130, FOREMEN, RAILWAY TRANSPORT OPERATING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities are limited, but some workers may transfer to appropriate occupations requiring similar skills in Unit Groups 9139, RAILWAY TRANSPORT OPERATING OCCUPATIONS, N.E.C., and 9199, OTHER TRANSPORT AND RELATED EQUIPMENT OPERATING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

9135-110	CENTRALIZED-TRAFFIC CONTROLLER
9135-114	CAR-ASSIGNMENTS CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	$\underline{3}$	3	$\underline{2}$	$\underline{4}$	$\underline{3}$	4	4	4	5	4	S-4567	I	4	7-6	12	495
				4							5						

9135-B RAILWAY TRANSPORT OPERATING SUPPORT OCCUPATIONS 367, 368, 388, 564

WORK PERFORMED: This chapter includes occupations concerned with providing direct support to railway transport operations. Worker functions include: co-ordinating information from train orders, schedules, movement charts or location panel-board and directing railway traffic on specified section of railway; operating equipment that controls railway switches and signals; compiling, copying or comparing data concerning the identification, location, requirement, assignment, movement, routing or destination of rolling stock; talking with or signalling operating crews and other personnel; tending turntables and switching equipment; and handling fuel and water replenishment and materials. Work activities include: reading train orders and schedules to become familiar with schedules runs, destinations, priorities and times of arrival and departure; preparing duty-roster schedule and notifying personnel of their assignments; monitoring panelboard to determine location of trains or charting movement of trains or graph or chart; attaching identification labels to railway cars; and performing minor maintenance and cleaning duties.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to become thoroughly familiar with established rules and regulations and to apply them to specific work activities; verbal ability to communicate effectively when giving or receiving instructions and information and reading comprehension to obtain pertinent information; clerical perception to avoid errors in reading tabular information and in keeping accurate records; eye-hand co-ordination and finger dexterity to manipulate small objects such as remote-control switches, telegraph keys, typewriter or teletypewriter keyboards; capacity to perform light work, including reaching for, handling or fingering telephone, telegraph key or keyboard machines, attaching labels to cars, examining door seals or checking switching orders and other clerical records; capacity to hear and to speak clearly when talking to other employees or customers.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; nine months on-the-job training and one year of previous experience in related work.

ADVANCEMENT POSSIBILITIES: Workers in this chapter at the elemental level normally advance to more demanding occupations within the chapter as they acquire experience, knowledge and seniority. Newly qualified workers are normally placed on the "spare list" and given temporary assignments until they acquire sufficient seniority for regular assignments. Those with supervisory potential may advance to appropriate occupations in Unit Group 9130, FOREMEN, RAILWAY TRANSPORT OPERATING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities are limited, but some workers may transfer to appropriate occupations requiring similar skills in Unit Groups 9139, RAILWAY TRANSPORT OPERATING OCCUPATIONS, N.E.C., and 9199, OTHER TRANSPORT AND RELATED EQUIPMENT OPERATING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

9135-118	CAR DISTRIBUTOR
9135-122	ENGINE DISPATCHER
9135-128	CAR CHECKER
9135-134	CREW SCHEDULER
9135-138	YARD CLERK
9135-142	TRAIN-DISPATCHER CLERK

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	3	4	4	4	5	5	S-456	I	3-2	5-3	31	2Y
	3	3				4				4							23Y

9151 - DECK OFFICERS

133, 134, 164, 168

WORK PERFORMED: This chapter includes occupations concerned with managing and operating vessels on oceans or coastal and inland waters. Worker functions include: supervising and co-ordinating the activities of the crew to ensure efficient operation and maintenance of the ship; and directing, steering and navigating the vessel. Work activities include: determining geographical positions by observations of celestial bodies and terrestrial landmarks and by use of other navigational aids and communications equipment; directing the loading and discharging of cargo; safeguarding passengers, crew and cargo; and giving advice for the safe passage of vessels in hazardous waters where special skill and local knowledge is required.

APTITUDES AND CAPACITIES: Deck Officers in the merchant marine require: learning ability to comprehend and apply the principles of celestial navigation, pilotage and basics of marine engineering, and to ensure stability in loading, unloading and transit of ships; verbal ability to communicate with people at all levels, give instructions and interpret technical charts, almanacs, manuals and other publications; numerical ability to quickly and accurately calculate geographical positions and course, speed and tide, and to ensure ship's stability; spatial perception to visualize the position and movement of ships in relation to one another and to circumvent navigational hazards; eye-hand-foot co-ordination to maintain balance on an erratically moving deck and to climb and descend ladders; physical capacity and agility to reach for and handle equipment such as sextant, compass and parallel ruler; good vision, depth perception and colour recognition for both close-up and distant work; adaptability to working inside or outside under a wide range of temperatures and weather conditions.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: twelve years of general education with emphasis on mathematics and physics preferred; pre-employment courses in a coastguard college or vocational centre, ranging from one to four years, depending on the occupation; or one to four years of approved sea-going experience; successful completion of examinations leading to certification.

ADVANCEMENT POSSIBILITIES: With additional training, experience and the successful completion of Ministry of Transport examinations, advancement may be to occupations requiring higher skills and responsibilities, such as First Mate or Master. Advancement may also be to service on larger and more complex ships with increased remuneration.

TRANSFER POSSIBILITIES: Transfer possibilities may be to land-based occupations concerned with shipping where special skills and knowledge acquired through service aboard ships is necessary, for example, 9159-112 MARINE SUPERINTENDENT, or with marine insurance adjusting, sea-school instructing or positions with government agencies.

OCCUPATIONAL TITLES:

9151-110	MASTER, SHIP	9151-122	FERRYBOAT MASTER
9151-114	MATE, SHIP	9151-126	TUGBOAT CAPTAIN
9151-118	PILOT, SHIP	9151-130	DECK-OFFICER CADET

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	2	3	2	2	3	3	4	3	3	4	L24567	B	5 4	8-5	59	490Y58
	3	3	2		3	4			4								

9153 - ENGINEER OFFICERS, SHIP

132, 231, 282

WORK PERFORMED: This chapter includes occupations concerned with planning and directing the activities of a ship's engineroom crew, and repairing, maintaining and operating the main propulsion engines, auxiliary machinery and electrical equipment. Worker functions include: co-ordinating and supervising activities of engine-room crew; controlling the operation of ship's propulsion engines and related equipment; analyzing data gathered by examination or tests to evaluate the condition of mechanical and electrical components; working to close tolerances to dismantle, repair and reassemble machinery and equipment. Work activities include: standing engine-room watches, observing gauges, dials and indicators; adjusting valves to control temperatures, pressure, flow of liquids and speed of pumps; and maintaining a record of engine-room operations.

APTITUDES AND CAPACITIES: Engineer Officers, Ship require: learning ability to understand and apply the principles and techniques of marine engineering and electrical technology; verbal ability to communicate effectively and to interpret a wide range of technical instructions in manuals or other publications; numerical ability to calculate fuel quantities and consumption, and for test and repair work; spatial ability to visualize the complete operation of a marine power plant, the fitting together of parts and their functions in relation to one another; form perception to inspect engines and other equipment to determine malfunctions; eye-hand-finger co-ordination and manual dexterity to make adjustments to throttles, gears and levers when operating machinery, and to dismantle, repair and reassemble machinery and equipment using hand and power tools, and lifting devices; eye-hand-foot co-ordination to maintain balance on erratically-moving decks; physical capacity to lift items weighing up to fifty pounds and agility to climb and descend ladders; agility to work in confined or restricted areas and in awkward positions such as crouching or kneeling during the repair or inspection of machinery; good hearing to detect engine malfunctions; good vision for close-up work, and depth perception when assembling mechanical parts or inspecting equipment; adaptability to working inside while exposed to a wide range of temperatures, continuous high noise levels of operating machinery such as generators and exhaust fans, and the possibility of injury from falls or the danger of fire or collision.

TRAINING AND ENTRY REQUIREMENTS: Engineer Officers normally require: twelve years of general education; a three to four-year program of studies at a marine school or college and on-the-job training; or, a three to four-year apprenticehsip program as a machinist engaged in constructing, installing or repairing of steam or internal combustion marine engines or similar type of equipment; or, three to four years of on-the-job training and experience while serving as engine-room crewman combined with part-time studies in related courses; completion of Ministry of Transport Examinations and certification.

ADVANCEMENT POSSIBILITIES: Advancement is normally from Fourth to Third, Second and First Engineer Officer, in accordance with ability, experience and examinations completed. Further advancement may also be to Marine Engineer, Chief, or to employment on larger ships with increased responsibilities and remuneration.

TRANSFER POSSIBILITIES: Some workers may transfer to shore occupations such as 9159-112 MARINE SUPERINTENDENT, or to administrative positions in the water transportation industry or government agencies. Transfer may also be to appropriate occupations in Minor Group 953, STATIONARY ENGINE AND UTILITIES EQUIPMENT OPERATING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

9153-110 MARINE ENGINEER, CHIEF
9153-114 MARINE-ENGINEER OFFICER
9153-118 MARINE-ENGINEER-OFFICER CADET

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	2	3	3	2	3	3	3	4	3	3	4	L-M34567	I3567	4	8-4	9150	40Y5
	3																

9155A - SHIP'S CARPENTERS

WORK PERFORMED: This chapter includes the occupation of Ship's Carpenter, and is concerned with fabricating and repairing ship's woodwork and wooden gear and performing a variety of maintenance and other duties as a member of a ship's crew. Worker functions include: analyzing data from drawings, ship's plans and other information to determine the measurements and nature of the work required; working with precision to make or repair partitions, doors, cabinets, lockers, tables and other items from wood; and manipulating carpenter's hand and power tools and operating shop equipment. Work activities include: controlling winches to weigh or veer anchor, or to warp ship alongside; sounding storage tanks, calculating soundings and controlling pumps to transfer liquids between tanks; attaching cargo nets, pallets, or slings to winch wire; and signalling other workers to move cargo.

APTITUDES AND CAPACITIES: Ship's Carpenters require: learning ability to understand and apply a wide variety of techniques to fabricate and repair ship's woodwork and wooden gear and reasoning ability to solve practical problems where established procedures do not exist; numerical ability to apply shop mathematics to solve practical problems and to calculate quantity, size and shape of articles or structures; spatial perception to visualize from blueprints, drawings or specifications the nature and position of structures to be built; form perception to detect damage, weaknesses or imperfections in structural parts or surfaces; eye-hand-finger co-ordination, finger dexterity and manual dexterity when working with hand or power tools; eye-hand-foot co-ordination and ability to maintain balance to climb and descend ladders and perform work activities while standing on erratically moving decks; physical capacity to perform medium work requiring lifting of weights up to fifty pounds; agility to work in confined or restricted areas and in awkward positions such as stooping or crouching while reaching for and handling tools, parts and assemblies; visual acuity for close-up work; adaptability to working inside and outside under a variety of temperature and weather conditions; adaptability to conditions where there are a variety of physical hazards such as close proximity to operating machinery, exposure to grease and dirt, possibility of injury from falls and the danger of fire or collision.

TRAINING AND ENTRY REQUIREMENTS: Ship's Carpenters normally require: ten years of general education; a two to four-year apprenticeship program, or a similar form of on-the-job training combined with regular periods of full-time studies in a trade or vocational school.

ADVANCEMENT POSSIBILITIES: Advancement possibilities for Ship's Carpenters are limited, but may be through employment in larger ships with increased responsibilities and remuneration.

TRANSFER POSSIBILITIES: With limited additional training, Ship's Carpenters may transfer to appropriate occupations in Chapter 8781, CARPENTERS AND RELATED OCCUPATIONS, or in Minor Group 835, WOOD MACHINING OCCUPATIONS.

OCCUPATIONAL TITLES:

9155-110 SHIP'S CARPENTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	3	3	3	4	M2347	B6	4	7	910	0Y918

9155B-A DECK CREW, SHIP

134, 663

WORK PERFORMED: This chapter includes occupations concerned with performing deck and bridge duties on board vessels that transport freight and passengers or tow ships, barges, or log booms. Worker functions include: steering the vessel and controlling the speed and direction of engines or signalling engine-room personnel to do so; supervising and co-ordinating the work activities of deck hands; comparing ship's course, depth soundings and visual sightings with deck officers' instructions; manipulating hand and power tools to maintain ship's equipment; and handling hawsers, wire cables and associated gear to secure vessel or log boom, and lay out towing lines. Work activities include: standing lookout or security watches; breaking out, rigging, overhauling and stowing cargo-handling gear; stowing and removing stores and cargo; lowering and hoisting lifeboats, and operating firefighting and other safety devices; and performing cleaning duties.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply maintenance and operating procedures and techniques on board ships; spatial perception to visualize relative position of ship with other ships, buoys, lights and other navigational aids to keep bridge or deck officers informed of ship's progress; form perception to detect weaknesses or damage in structural parts, rigging and preservative coatings; eye-hand co-ordination to move hands quickly and accurately when operating equipment such as winches to lower and raise lifeboats; finger and manual dexterity to move hands and fingers accurately and rapidly to manipulate parts or objects, such as in splicing rope or sewing canvas; physical capacity and agility to climb and descend ladders, maintain balance and perform work activities while standing or walking an erratically moving deck, and to lift weights up to fifty pounds; good vision for viewing close-up and distant objects, good depth perception and colour vision; capacity to work both inside and outside while exposed to a wide range of temperatures and weather conditions; adaptability to working while exposed to loud intermittent noises of pneumatic and other types of machines.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: seven to eight years of general education; three years of on-the-job training and experience leading to certification.

ADVANCEMENT POSSIBILITIES: With additional training, experience and successful completion of Ministry of Transport examinations, advancement for workers in this chapter may be from Deck-Hand to Able Seaman and to Boatswain. Those with ability and supervisory potential may also, with further training and completion of examinations, advance to 9151-114 MATE, SHIP.

TRANSFER POSSIBILITIES: Because of the specialized nature of these occupations, transfer possibilities are limited, but may be between different types of ships such as between freighters and passengers ships, sea and ocean-going or inland ships and ferry boats.

OCCUPATIONAL TITLES:

9155-114 BOATSWAIN
9155-118 ABLE SEAMAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	4	4	3	3 4	3	3	4	L-M247	B-5	3	6-5	9 91	450Y1 5Y

9155B-B DECK CREW, SHIP

683, 684

WORK PERFORMED: This chapter includes occupations concerned with performing deck and bridge duties on board vessels that transport freight and passengers or tow ships, barges, or log booms. Worker functions include: steering the vessel and controlling the speed and direction of engines or signalling engine-room personnel to do so; supervising and co-ordinating the work activities of deck hands; comparing ship's course, depth soundings and visual sightings with deck officers' instructions; manipulating hand and power tools to maintain ship's equipment; and handling hawsers wire cables and associated gear to secure vessel or log boom, and lay out towing lines. Work activities include: standing lookout or security watches; breaking out, rigging, overhauling and stowing cargo-handling gear; stowing and removing stores and cargo; lowering and hoisting lifeboats, and operating firefighting and other safety devices; and performing cleaning duties.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and follow written or oral instructions; eye-hand co-ordination to move hands quickly and accurately when steering ships or operating deck equipment; manual dexterity to move hands easily when using hand and power tools to chip rust from surfaces, wash decks, paint surfaces and stow cargo-handling and other gear; eye-hand-foot co-ordination, particularly for 9155-126, TUGBOAT DECK-HAND, LOG BOOM, for walking and balancing on floating logs while using pike pole to free log jams; physical capacity to climb and descend ladders, maintain balance on erratically moving decks and to lift and carry objects weighing up to one hundred pounds; agility to work in confined or restricted areas usually in awkward positions such as kneeling, crouching or stooping while handling tools, spare parts, and repairing log booms; good vision, depth perception and colour vision; capacity to work inside or outside while exposed to a wide range of temperatures, weather conditions and salt water spray; adaptability to conditions where there is a variety of hazards including exposure to grease, dirt and irritants, the possibility of injury due to falls, the danger of fire, collision and loss of life through drowning.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: seven to eight years of general education; one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, experience and successful completion of Ministry of Transport examinations, advancement for workers in this chapter may be from Deck-Hand to Able Seaman and to Boatswain. Those with ability and supervisory potential may also, with further training and completion of examinations, advance to 9151-114 MATE,SHIP.

TRANSFER POSSIBILITIES: Because of the specialized nature of these occupations, transfer possibilities are limited, but may be between different types of ships such as between freighters and passengers ships, sea and ocean-going or inland ships and ferry boats.

OCCUPATIONAL TITLES:

9155-122 DECK-HAND
9155-126 TUGBOAT DECK-HAND, LOG BOOM

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	3	4	3	3	4	H-2347	O-46	2	4	13	23Y
						5				2							

9157 - ENGINE AND BOILER-ROOM CREW, SHIP

684, 685

WORK PERFORMED: This chapter includes occupations concerned with lubricating ship's engines and machinery, attending boilers, and assisting in the repair of engines and other equipment. Worker functions include: comparing operating temperatures, pressures and other instrument readings with specified standards; manipulating valves and levers to adjust variables such as the level, flow or pressure of lubricants, water, steam, fuel and air; and tending boilers. Work activities include: observing gauges and other indicators; oiling and greasing machinery parts such as gears, shafts and bearings of main engines and auxiliaries; filling lubricant dispensers; connecting fuel lines; changing and cleaning burner nozzles; lighting boiler fires; assisting in the repair of machinery and equipment; and cleaning engine-room and machinery.
APTITUDES AND CAPACITIES: Marine oilers and firemen require: learning ability to understand and apply oral or written instructions; form perception to discern that operating machinery is properly lubricated and to detect defects and malfunctions; eye-hand-finger co-ordination and manual dexterity to adjust levers and valves, lubricate machinery and handle tools and parts during repair operations; eye-hand-finger co-ordination and manual dexterity to adjust levers and valves, lubricate machinery and handle tools and parts during repair operations; eye-hand-foot co-ordination to climb and descend ladders, maintain balance and remain standing for extended periods on an erratically moving deck; strength to lift and carry weights up to fifty pounds; agility to work in confined or restricted spaces and in awkward positions such as kneeling and crouching when lubricating machinery and equipment; adaptability to uncomfortably high temperatures; adaptability to working conditions involving exposure to harmful effects of loud, continuous noises from operating machinery such as diesel engines, steam turbines and exhaust fans.
TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: seven to nine years of general education; three to six months of on-the-job training.
ADVANCEMENT POSSIBILITIES: Workers in this chapter with ability, interest and initiative may, with additional training and completion of certification requirements, advance to appropriate occupations in Chapter 9153, ENGINEER OFFICERS, SHIP.
TRANSFER POSSIBILITIES: Transfer possibilities are limited, but some workers may transfer to appropriate occupations in Chapter 9533, STATIONARY ENGINE AND AUXILIARY EQUIPMENT OPERATING AND MAINTAINING OCCUPATIONS.
OCCUPATIONAL TITLES:

9157-110	OILER, MARINE
9157-114	FIREMAN, MARINE

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	3	4	3	3	5	L-M34	I35	3	4-3	319	23Y
							4		4		4						

9171 - BUS DRIVERS

WORK PERFORMED: This chapter includes occupations concerned with operating buses to transport passengers to local and distant points on established or other routes. Worker functions include: driving a bus on urban or intercity routes; and talking with passengers to dispense information regarding schedules, routes, transfer locations and points of interest. Work activities include: inspecting vehicle prior to run; collecting tickets and cash fares; issuing transfers; entering transactions and other data in record books; and regulating heating, lighting and ventilating systems.

APTITUDES AND CAPACITIES: Bus Drivers require: learning ability to operate a bus, to understand and apply motor vehicle and safety regulations and reasoning ability to adjust speed and duration of stops to maintain schedules and to use good judgment in critical situations; spatial perception to visualize relationship between own and other moving vehicles and stationary objects and to judge speeds and distances accurately; eye-hand-finger co-ordination and manual dexterity to make rapid and accurate movements when manipulating bus controls; eye-hand-foot co-ordination to operate vehicle controls; physical strength to lift and carry weights up to fifty pounds when loading and unloading luggage and other items; capacity to speak clearly when talking to passengers; capacity to hear alarm and other signals such as those from fire engines and railway crossings against a background of traffic noise; capacity to drive and remain alert for extended periods while exposed to continuous noise from own vehicle and traffic; adaptability to hazardous road conditions caused by traffic and weather; near and far visual acuity, depth perception and colour vision.

TRAINING AND ENTRY REQUIREMENTS: Bus Drivers normally require: nine to ten years of general education, although some employers may require high school graduation; one to four weeks of specialized training; on-the-job training for periods up to nine months; completion of licencing requirements.

ADVANCEMENT POSSIBILITIES: Bus Drivers who acquire administrative ability may advance to appropriate occupations in other chapters, for example, 1176-158 INSPECTOR, TRANSPORTATION SERVICES; 4199-154 BUS-TRANSPORTATION-SERVICE CO-ORDINATOR; 9179-110 DISPATCHER, BUS; 9179-122 SCHEDULE MAKER. Those with supervisory ability may advance to 9170-110 FOREMAN, BUS DRIVERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some Bus Drivers may transfer to other motor-transport-operating occupations in Chapters 9173, TAXI DRIVERS AND CHAUFFEURS; 9175, TRUCK DRIVERS; and 9179, MOTOR TRANSPORT OPERATING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

9171-110 BUS DRIVER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	3	4	4	3	4	3	3	4	M4567	I	3	4	923	2Y59
	3																

9173 - TAXI DRIVERS AND CHAUFFEURS 473, 673

WORK PERFORMED: This chapter includes occupations concerned with operating taxis or privately owned automobiles to transport passengers. Worker functions include: driving automobilies; and talking to passengers or dispatchers to receive or give information. Work activities include: assisting passengers in and out of vehicles and handling luggage; collecting fares and making change; recording trips and transactions; picking up and delivering packages; cleaning vehicles; and making minor repairs and adjustments.

APTITUDES AND CAPACITIES: Taxi Drivers and Chauffeurs require: learning ability to operate a motor vehicle, understand and follow motor vehicle and safety regulations, know the location of streets and important buildings and reasoning ability to select the best routes according to varying traffic conditions; spatial perception to visualize the relationship between own and other moving vehicles and stationary objects and to judge distances accurately; eye-hand co-ordination and manual dexterity to make precise movements rapidly and accurately when manipulating gear shift, levers, brakes and other controls; eye-hand-foot co-ordination to operate a motor vehicle; physical capacity to lift and carry luggage and other items weighing up to thirty pounds; near and far visual acuity and depth perception; colour vision to recognize traffic signs and lights; capacity to drive an automobile for extended periods while exposed to high levels of traffic noise; adaptability to a wide range of road, traffic and weather conditions.

TRAINING AND ENTRY REQUIREMENTS: Taxi Drivers and Chauffeurs normally require: eight to ten years of general education; one to two months of on-the-job training, depending on employer requirements; completion of licensing requirements.

ADVANCEMENT POSSIBILITIES: Advancement opportunities for Taxi Drivers and Chauffeurs are very limited. A small number of experienced workers may advance to 9179-126 DISPATCHER, TAXICAB. Some may become self-employed as owner-operators of one or several vehicles.

TRANSFER POSSIBILITIES: Some Taxi Drivers and Chauffeurs may transfer to 9171-110 BUS DRIVER, or to some occupations in Chapter 9175, TRUCK DRIVERS, provided they have the necessary qualifications.

OCCUPATIONAL TITLES:

9173-110	TAXI DRIVER
9173-114	CHAUFFEUR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	3	4	4	3	4	3	3	4	L47	B567	3	3	932	2Y5

9175 - TRUCK DRIVERS

583, 683

WORK PERFORMED: This chapter includes occupations concerned with operating gasoline or diesel-powered trucks, tractor-trailers and similar vehicles to transport goods and materials over urban, inter-city, inter-provincial or international routes. Primary worker function is: driving a truck and operating its equipment. Work activities include: inspecting vehicle before and after run, and en-route; manoeuvering vehicle onto weighing scale, under hopper or filling tank, or to other loading or unloading areas; operating valves, pumps, conveyor or other loading devices; reading gauges or meters and recording quantities loaded; placing protective padding around articles and securing load to prevent damage; moving levers or pedals to tilt truck body and dump contents; attaching towing devices to other vehicles; communicating with dispatchers by radio; making cash transactions or preparing vouchers for items received or delivered; and recording times of arrival and departure, mileage, fuel consumption, malfunctions and details of load carried.

APTITUDES AND CAPACITIES: Truck Drivers require: learning ability to understand and apply vehicle-operating instructions, safety regulations and in some instances, special directives concerning the loading and transportation of hazardous materials; spatial perception to visualize relationship between own and other moving vehicles and stationary objects, the movement or placement of objects and materials, and to judge speed and distance when manoeuvering vehicle into confined or congested areas; eye-hand co-ordination to manipulate vehicle controls; manual dexterity to move hands and arms easily and skilfully when driving truck or tractor-trailer; eye-hand-foot co-ordination to move hands and feet simultaneously and rapidly in response to visual stimuli when operating levers, pedals, steering wheel and other vehicle controls; good hearing to detect alarm and other signals through traffic noise and to listen to operating trucks or equipment for signs of malfunctions; good vision to read gauges and other indicators of truck's operation, and depth perception and colour vision; capacity to drive vehicle for extended periods while exposed to the continuous noise of the vehicle itself and other traffic noises; adaptability to hazardous conditions found on roads, in traffic and during all types of weather.

TRAINING AND ENTRY REQUIREMENTS: Truck Drivers normally require: seven to nine years of general education, although some employers may require up to eleven; one to six months of on-the-job training, depending on the type of vehicle to be driven; one year of previous driving experience and a good driving record; completion of test and examination requirements to hold Provincial Chauffeur's Licence or equivalent.

ADVANCEMENT POSSIBILITIES: Truck Drivers who acquire knowledge of business practices may become self-employed as owners of their own vehicles or fleet. Those with experience and supervisory potential may advance to 9170-118 FOREMAN, TRUCK DRIVERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer opportunities are limited, but some Truck Drivers may transfer to 9171-110 BUS DRIVER, 9173-110 TAXI DRIVER, 9173-114 CHAUFFEUR, or to appropriate occupations in Group 9179, MOTOR TRANSPORT OPERATING OCCUPATIONS, N.E.C.

OCCUPATIONAL TITLES:

9175-110	TRUCK DRIVER, GENERAL	9175-126	DRIVER, CONCRETE-MIXING-TRUCK
9175-114	DRIVER, TANK TRUCK	9175-130	DRIVER, DUMP-TRUCK
9175-118	TRUCK DRIVER, HEAVY	9175-134	DRIVER, TOW-TRUCK
9175-122	TRUCK DRIVER, TRACTOR-TRAILER	9175-138	TRUCK DRIVER, LIGHT

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	4	4	3	4	3	3	4	M467	B56	3	4-3	913	2Y
	4																

9191 - SUBWAY AND STREET RAILWAY OPERATING OCCUPATIONS 663, 683

WORK PERFORMED: This chapter includes occupations concerned with transporting passengers in subway trains and streetcars over urban and suburban routes. Worker functions include: driving and operating subway train or streetcar in a safe and efficient manner and according to traffic regulations; comparing and observing road or rail conditions, traffic signals and other vehicles; and talking with passengers to provide information concerning routes and fares. Work activities include: driving along routes according to timetables; stopping vehicles and opening and closing doors for passengers; collecting fares, making change and issuing transfers; and picking up and returning fare box at beginning and end of shift.

APTITUDES AND CAPACITIES: Subway Motormen and Streetcar Operators require: learning ability to understand and apply the knowledge and skills needed to operate subway trains and streetcars, and to exercise considerable judgment with regard to signal systems, traffic regulations and emergency situations; numerical ability to make rapid arithmetical calculations when collecting fares or issuing change; spatial perception to visualize the relationship of streetcar to other moving or stationary objects, or to visualize the functioning of train and track systems; eye-hand-finger co-ordinations and manual dexterity to operate door and start-and-stop controls, issue transfers and make change, manually switch tracks, reposition overhead trolley, or use emergency telephones; eye-foot co-ordination to synchronize foot motions with vision to stop or control speed of subway train or streetcar; physical capacity to perform light work, and to reach for and handle tickets, transfers, tokens and change; facility to speak clearly when talking to passengers, or dispensing information; visual acuity, near and far, depth perception and accommodation, to read panel instruments, judge distances, and to control streetcar and subway vehicles safely and efficiently; good colour vision to recognize colours and detect colour changes on traffic lights or right-of-way, emergency and danger signals; adaptability to working while exposed to continuous and intermittent noises from traffic.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: nine to ten years of general education; for 9191-110 STREETCAR OPERATOR, three to six months of on-the-job training; and completion of provincial requirements for Chauffeur's Licence; for 9191-114 MOTORMAN, SUBWAY, three to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement possibilities for workers in this chapter are limited, however, experienced workers may advance to 1176-158 INSPECTOR, TRANSPORTATION SERVICES. Those with supervisory potential may advance to appropriate occupations in Unit Group 9190, FOREMEN, OTHER TRANSPORT AND RELATED EQUIPMENT OPERATING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: Transfer possibilities are also limited but with some additional training, some workers may transfer to occupations in Chapters 9171, BUS DRIVERS, or 9175, TRUCK DRIVERS. Some Streetcar Operators may transfer to Motorman Subway.

OCCUPATIONAL TITLES:

9191-110	STREETCAR OPERATOR
9191-114	MOTORMAN, SUBWAY

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	3	4	3	3	4	3	3	3	3	4	L4567	I5	3	4	923	2Y5
		4			4	5	4	4								93	2Y

9193-A MOTORMEN AND DINKEYMEN, EXCEPT RAILWAY TRANSPORT

663, 683

WORK PERFORMED: This chapter includes occupations concerned with transporting materials in mines, quarries or industrial yards utilizing dinkey engines and similar equipment. Worker functions include: driving dinkey engines to haul and shunt cars of underground or surface railway system; signalling other workers to couple or uncouple cars, activate loading or unloading devices and warn approaching traffic; and handling brakes, switches and levers to regulate speed of cars, to route cars to siding or to open and close bottom doors of car. Work activities include: hoisting or manoeuvering cars into position under discharge chutes or conveyors; attaching cables used to lift or tow cars; inspecting engines, cleaning spillage from track area at loading chute; and performing minor maintenance and cleaning duties.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the techniques of driving or operating dinkey engines or similar equipment in mines, quarries and industrial yards; spatial perception to determine relative position of other moving or stationary objects on tracks to avoid accidents; eye-hand co-ordination and manual dexterity to operate vehicle controls or switches, couplings and loading or unloading control levers or other devices; physical capacity to perform light to medium work involving the occasional lifting and carrying of weights up to fifty pounds; good eyesight, depth perception and colour vision; capacity to work both inside and outside while exposed to a wide range of temperatures and weather conditions; capacity to work while exposed to the almost continuous noise and vibration of moving train and intermittent noises of air compressor, pneumatic drilling equipment or blasting activities; adaptability to conditions where a variety of hazards may exist such as injury due to falls, proximity of operating equipment, poor lighting and explosives; adaptability to working while exposed to the possible injurious effects of dusts, fumes, odours and gases prevalent during industrial processing; facility to hear and speak clearly when directing workers and listening for whistle or alarm signals; capacity to work in a moisture-saturated atmosphere.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: seven to ten years of general education; three to six months of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES:
Workers in Cluster A may advance to appropriate occupations in Unit Group 9190, FOREMEN, OTHER TRANSPORT AND RELATED EQUIPMENT OPERATING OCCUPATIONS, or 7710, FOREMEN, MINING AND QUARRYING INCLUDING OIL AND GAS FIELD OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profiles.

TRANSFER POSSIBILITIES: Transfer possibilities for workers in this chapter are limited but, with limited additional training, may be to appropriate occupations in Group 9199, OTHER TRANSPORT AND RELATED EQUIPMENT OPERATING OCCUPATIONS, N.E.C. Possibilities may also be to a few appropriate occupations in Minor Group 771, MINING AND QUARRYING INCLUDING OIL AND GAS FIELD OCCUPATIONS.

OCCUPATIONAL TITLES:

9193-110 DINKEY-ENGINE OPERATOR
9193-114 SHUTTLE-CAR OPERATOR
9193-118 QUENCHING-CAR OPERATOR
9193-122 TRANSFER -HOIST OPERATOR
9193-126 KILN-TRANSFER OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	3	4	5	3	4	3	4	5	L-M47	I-B4567	3-2	4-3	913	2Y
	3		4	4					4	3	4						2Y3

9311 - HOISTING OCCUPATIONS, N.E.C. 664, 667, 683, 684

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with lifting and moving materials, machines, equipment and products. Worker functions include: driving and operating power-operated cranes, hoists and winches and comparing load weights and hook-up arrangements with safe operating practices to prevent accidents. Work activities include: moving pedals and levers to control hoisting machinery; estimating load weights; setting up rigging; positioning loads ready for lifting; attaching and unhooking loads; and inspecting, adjusting, cleaning and lubricating machinery, cables, ropes and slings.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the operation of hoisting equipment or rigging procedures and the safety practices associated with these activities; spatial perception to visualize the relative positions of objects or materials being moved when operating equipment or guiding equipment operators; eye-hand-finger co-ordination and manual dexterity to attach ropes, slings, hooks and shackles; eye-hand-foot co-ordination when operating levers and pedals to control hoisting machines, or when climbing booms to rig, inspect or lubricate equipment; strength to perform light to medium work, depending on the occupation involved, requiring frequent lifting of items weighing up to twenty pounds, or the continuous manipulation of machine levers and pedals; far visual acuity and depth perception to see hand signals and to raise, lower and position objects and materials; adaptability to working while exposed to loud noises and fumes from machines and to possible hazards such as moving mechanical parts, suspended loads and potential falls.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: seven to ten years of general education; for some occupations, a one to three-year apprenticeship program, which may provide for regular periods of full-time attendance at a trade school and which may be provincially regulated, or a similar form of on-the-job training; completion of provincial certification requirements; for other occupations, one month to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to occupations requiring higher skills within the chapter. Experienced workers may also advance to 9310-110 FOREMAN, HOISTING OCCUPATIONS, N.E.C. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: With limited additional training, some workers may transfer to other occupations within the chapter or to appropriate occupations requiring similar basic skills in other chapters; such as 7517, LOG HOISTING, SORTING, MOVING AND RELATED OCCUPATIONS; 7711, ROTARY WELL-DRILLING AND RELATED OCCUPATIONS; or 7717, MINING AND QUARRYING: CUTTING, HANDLING AND LOADING OCCUPATIONS.

OCCUPATIONAL TITLES:

9311-110	ELECTRIC-GANTRY-CRANE OPERATOR	9311-142	CANTILEVER-CRANE OPERATOR
		9311-146	ELECTRIC-MONORAIL-CRANE OPERATOR
9311-114	FLOATING-CRANE OPERATOR	9311-150	HIGH-RIGGING MAN
9311-118	HOIST OPERATOR	9311-154	SKIP OPERATOR
9311-122	LOCOMOTIVE-CRANE OPERATOR	9311-158	FLYMAN
9311-126	TOWER-CRANE OPERATOR	9311-162	WALKING-BRIDGE-CRANE OPERATOR
9311-130	TRACTOR-CRANE OPERATOR	9311-166	WINCHMAN
9311-134	TRUCK-CRANE OPERATOR	9311-170	CRANE CHASER
9311-138	RIGGER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	5	3	4	5	3	4	3	3	5	L-M47	B56	3-2	5-3	913	2Y
	4					4				4	4						2Y3

9313 - LONGSHOREMEN, STEVEDORES AND FREIGHT HANDLERS 567, 585, 587, 664, 683, 685

WORK PERFORMED: This chapter includes occupations concerned with loading and unloading ships, barges, trucks, railway cars and other transportation conveyances. Worker functions include: driving and operating industrial trucks, tractors and loaders; tending winches and conveyors; comparing sizes, weights and capacities; recording weight, volume and quantity of materials handled; signalling other workers; and handling or carrying objects or materials. Work activities include assembling cargo in slings or on pallets; attaching hooks or lifting devices; stowing and securing cargo; pushing and pulling machine controls; selecting and coupling hoses and opening valves; and observing flow of materials on conveyors.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand loading schedules and instructions for operating machines and equipment; spatial perception to visualize the relationship, movement or placement of a variety of objects or materials and to comprehend differences in weights and dimensions of objects to be moved and stowed; eye-hand co-ordination to operate controls of machines and equipment; manual dexterity to easily and skilfully connect pipes and hoses, open and close valves and push and pull machine controls; eye-hand-foot co-ordination for 9313-110 LONGSHOREMEN to drive, operate and position specialized types of vehicles, and for 9313-122 FURNITURE MOVER to drive trucks, position dollies, balance and carry articles in difficult locations and stack and stow objects in vans; strength to perform medium to heavy work requiring frequent lifting of equipment weighing up to fifty pounds; agility to walk or climb steps, ramps, ladders and walkways; capacity to stoop and reach when handling or moving objects, servicing material-handling machinery, attaching lifting gear and securing cargo; good vision to perform a variety of duties involving seeing objects over considerable distances; adaptability to working inside and outside, in proximity to loud noises and movement or activities of machines, or while exposed to fumes and dust.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: seven to nine years of general education; one month to one year of on-the-job training, depending on the occupation and equipment used.

ADVANCEMENT POSSIBILITIES: With additional training and experience, workers may advance to other occupations within the chapter. Those who acquire experience with hoisting equipment may advance to appropriate occupations in Chapter 9311, HOISTING OCCUPATIONS, N.E.C. Experienced workers with supervisory potential may advance to 9310-118 FOREMAN, LONGSHOREMEN, STEVEDORES AND FREIGHT HANDLERS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Some workers may transfer to occupations requiring similar skills within this chapter. Transfer possibilities may also be to appropriate occupations in Chapters 7717, MINING AND QUARRYING: CUTTING, HANDLING AND LOADING OCCUPATIONS, and 9537, PUMPING AND PIPELINE EQUIPMENT OPERATING OCCUPATIONS.

OCCUPATIONAL TITLES:

9313-110	LONGSHOREMAN	9313-130	CAR-DUMPER TENDER
9313-114	TOWER-LOADER OPERATOR	9313-134	LOADER, LIQUIDS
9313-118	TANKER LOADER	9313-138	BELTMAN
9313-122	FURNITURE MOVER	9313-142	DUMPER
9313-126	GRAIN RECEIVER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4 5	4 3	4	4 5	3 4	4	3 4	4 5 3	5	L-H2347	I-0567	3-2	5-2	319	23Y

9315-B MATERIAL-HANDLING EQUIPMENT OPERATORS, N.E.C. 563, 683

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with using material-handling equipment to move and store goods and materials in sheds, warehouses or other areas. Worker functions include: driving and operating bulldozers, tractors, loaders and industrial trucks; controlling and tending equipment to sort, load, transfer or convey materials; and comparing sizes weights and capacities of materials and goods being moved. Work activities include: observing operation of machines and movement of materials; reading production and delivery schedules; moving controls to start, stop, steer, direct or regulate movement of machines, equipment or materials; clearing stoppages on conveyor systems; and performing minor adjustments.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and carry out loading or delivery schedules and operating instructions for materials-handling equipment; spatial perception to operate machines and to visualize relative positions resulting from the movement or placement of objects or materials; eye-hand co-ordination to operate equipment or control machinery; manual dexterity to push and pull levers, connect pipes and hoses and open and close conveyor gates and valves; capacity to work in stooping, kneeling or crouching positions to adjust or service machines, clear stoppages or lift objects; capacity to work in noisy locations where moving machinery or objects are potential hazards and where exposure to fumes and dust may cause discomfort; eye-hand-foot co-ordination to operate levers and pedals to steer and control mobile material-handling equipment; agility to climb and balance to operate or service elevated straddle-trucks, tractors or conveyors.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: for some occupations, ten to twelve years of general education; and three months to one year of on-the-job training and related experience; for other occupations, six to eight years of general education; and two weeks to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Some workers may advance to higher skilled occupations within this chapter. Experienced workers with supervisory potential may advance to 9310-122 FOREMAN, MATERIAL-HANDLING EQUIPMENT OPERATORS, N.E.C. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to occupations requiring similar skills within the chapter or with additional training, to appropriate occupations in other chapters, for example, 7717-138 BELTWAGON OPERATOR; 7717-142 BOOM-CONVEYOR OPERATOR: and 7717-146 LOADING-MACHINE OPERATOR.

OCCUPATIONAL TITLES:

9315-122	COAL-EQUIPMENT OPERATOR
9315-126	INDUSTRIAL-TRUCK OPERATOR
9315-130	TRACTOR OPERATOR
9315-134	STRADDLE-TRUCK OPERATOR
9315-154	WOOD-CHIP UNLOADER
9315-158	POLE-DISTRIBUTOR OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	4	4	3	4	3	3	5	L-M2347	B-567	3-2	4-3	913	23Y
	4		5	4		5					4						

9315-C MATERIAL-HANDLING EQUIPMENT OPERATORS, N.E.C.

665, 682, 685, 687

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with using material-handling equipment to move and store goods and materials in sheds, warehouses or other areas. Worker functions include: driving and operating bulldozers, tractors, loaders and industrial trucks; controlling and tending equipment to sort, load, transfer or convey materials; and comparing sizes weights and capacities of materials and goods being moved. Work activities include: observing operation of machines and movement of materials; reading production and delivery schedules; moving controls to start, stop, steer, direct or regulate movement of machines, equipment or materials; clearing stoppages on conveyor systems; and performing minor adjustments.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and carry out loading or delivery schedules and operating instructions for materials-handling equipment; spatial perception to operate machines and to visualize relative positions resulting from the movement or placement of objects or materials; eye-hand co-ordination to operate equipment or control machinery; manual dexterity to push and pull levers, connect pipes and hoses and open and close conveyor gates and valves; capacity to work in stooping, kneeling or crouching positions to adjust or service machines, clear stoppages or lift objects; capacity to work in noisy locations where moving machinery or objects are potential hazards and where exposure to fumes and dust may cause discomfort.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: for some occupations, ten to twelve years of general education; and three months to one year of on-the-job training and related experience; for other occupations, six to eight years of general education; and two weeks to three months of on-the-job training.

ADVANCEMENT POSSIBILITIES: Some workers may advance to higher skilled occupations within this chapter. Experienced workers with supervisory potential may advance to 9310-122 FOREMAN, MATERIAL-HANDLING EQUIPMENT OPERATORS, N.E.C. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to occupations requiring similar skills within the chapter or with additional training, to appropriate occupations in other chapters, for example, 7717-138 BELTWAGON OPERATOR; 7717-142 BOOM-CONVEYOR OPERATOR; and 7717-146 LOADING-MACHINE OPERATOR.

OCCUPATIONAL TITLES:

9315-114	CONVEYOR OPERATOR
9315-118	BULK-PLANT TENDER
9315-138	JACK-LADDER LEVERMAN
9315-142	BINMAN
9315-146	MALT-HOUSE TENDER
9315-150	TRANSFER MAN
9315-162	CEMENT LOADER-AND-SACKER
9315-166	CHIP-SILO MAN
9315-170	CONVEYOR MAN
9315-174	CONVEYOR TENDER
9315-178	GLASS-CUT-OFF-MACHINE UNLOADER
9315-182	STACKING-MACHINE TENDER
9315-186	MUNITIONS HANDLER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	5	5	L-M347	I-567	3-2	4-2	319	23Y
			5			5	3		4	4							23

9317-B PACKAGING OCCUPATIONS, N.E.C.

587, 665, 684, 685, 687

WORK PERFORMED: This chapter includes occupations, not elsewhere classified, concerned with a variety of packaging activities such as assembling containers, covering articles or goods with protective materials, filling and sealing containers, wrapping, bundling and baling products and materials and preparing and packaging samples for display purposes. Worker functions include: setting up, operating and tending packaging machines; handling containers, labels, packing and sealing materials, and products being packaged; and comparing packaged articles to specified standards to ensure conformance to weight and quantity or for defects in wrapping and packing. Work activities include: changing machine parts such as label-applicator plates, gears and mandrels; adjusting mechanisms that control feed hoppers, rollers, cutting blades and conveyor guides; repairing and replacing damaged jigs, fixtures and other machine parts; opening defective packages and depositing waste in separate containers; crating and wrapping heavy equipment; labelling packaged products; and recording materials used.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply instructions for tending packaging machines; form perception to examine packages for defects; eye-hand-finger co-ordination and manual dexterity to use hand and power tools to adjust or clean machines and to position material on machines or place articles in packages; capacity to perform light to medium work requiring the frequent lifting of objects weighing up to fifty pounds; capacity to stoop, kneel or crouch when moving materials to work areas or when feeding and tending machines; visual acuity, both near and far, depth perception and colour vision; adaptability to either constant or intermittent noise and vibration; adaptability to working in situations where the individual is exposed to the risk of injury from operating machinery.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES:
Cluster B is considered entry jobs and advancement is normally to more highly skilled occupations within the cluster or in Cluster A for those workers who demonstrate ability, interest and initiative.

TRANSFER POSSIBILITIES: With limited additional training, transfer possibilities for workers in this chapter may be to other occupations requiring similar basic skills within the chapter.

OCCUPATIONAL TITLES:

9317-118	PRESSURIZED-CONTAINER FILLER
9317-122	CIGARETTE-PACKING-MACHINE TENDER
9317-126	CRATER
9317-130	CARTON-PACKAGING-MACHINE TENDER
9317-134	PACKER, INSULATION
9317-138	REWINDING-MACHINE TENDER
9317-142	AMPOULE FILLER
9317-146	BARREL FILLER
9317-150	PLYWOOD BUNDLER
9317-154	LOCKER-PLANT ATTENDANT
9317-158	FURNITURE PACKER
9317-162	SNUFF-PACKING-MACHINE TENDER
9317-166	STARCH-PRESS TENDER
9317-170	CIGAR-WRAPPING-MACHINE TENDER
9317-174	TOBACCO-PACKING-MACHINE
9317-178	TYPING-MACHINE TENDER
9317-182	BALING-MACHINE TENDER
9317-186	BEER-CARTON PACKER
9317-190	BOTTLE PACKER
9317-194	CANDLE WRAPPING-MACHINE TENDER
9317-198	CARDER
9317-202	COTTON-ROLL-MACHINE TENDER
9317-206	HOGSHEAD-FILLER AND PACKER
9317-210	KEG WASHER
9317-214	PACKAGER, BAKERY PRODUCTS
9317-218	PACKAGER, MACHINE
9317-222	PACKAGER, LIQUID
9317-226	PLASTIC-PACK MACHINE TENDER
9317-230	SACK FILLER
9317-234	SPOOL WINDER
9317-238	BLUEPRINT TRIMMER
9317-242	SNUFF-CAN INSPECTOR
9317-246	FILM SPOOLER
9317-250	LABEL CODER
9317-254	NUT AND BOLT ASSEMBLER
9317-258	PACKAGER, AIRCRAFT PARTS
9317-266	ROLL FINISHER
9317-274	SHOT BAGGER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	5	5	L-M347	I56	3-2	4-2	319	23Y
			5		3	5	3		4	4	4						

9318 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK, MATERIAL HANDLING, N.E.C.

WORK PERFORMED: This chapter includes occupations in labouring and other elemental work, not elsewhere classified, concerned with loading, moving and packing materials and products. The primary worker function is: handling a wide variety of materials or objects by hand or by the use of special devices and material handling equipment. Work activities include: loading and unloading trucks, pallets, racks and conveyors; distributing materials to work stations; opening containers and sorting and storing articles on shelves; filling freight cards with bulk substances such as wheat or coal; stacking lumber; emptying liquids from tank cars; assembling cartons and containers; packaging products by hand; and cleaning and sweeping work areas.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow simple work instructions concerning material handling and packaging; form perception to sort articles by condition, size, shape and colour; eye-hand-finger co-ordination to make movements accurately and quickly, when handling small objects or when nailing, gluing, sealing or closing boxes; finger dexterity to fill containers with small objects, tie bundles or affix labels to packages; manual dexterity to stack material, open and close valves and sort materials; capacity to perform light to heavy work requiring the frequent lifting of objects weighing up to fifty pounds and occasionally lifting objects weighing up to one hundred pounds; capacity to stoop, kneel and crouch when lifting or moving materials to and from shelves, bins and conveyors; adaptability to working inside, or both inside and outside in situations such as refrigerated rooms, furnace rooms or in congested work areas.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: six to eight years of general education; up to thirty days of on-the-job training.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs, and advancement for workers who demonstrate ability, interest and initative may be to more highly skilled occupations in Minor Group 931, MATERIAL-HANDLING AND RELATED OCCUPATIONS, N.E.C. Those with supervisory potential may advance to 9310-114 FOREMAN, LABOURERS AND ELEMENTAL WORKERS, MATERIAL-HANDLING. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in this chapter may transfer to other occupations with similar skills and physical requirements within the chapter or to occupations in labouring and elemental work in other chapters.

OCCUPATIONAL TITLES:

9318-110	MATERIAL HANDLER, GENERAL	9318-118	MATERIAL HANDLER, LIGHT
9318-114	MATERIAL HANDLER, HEAVY	9318-142	PACKAGER, HAND

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	3	4	3	4	5	L-H34	I-B	1	2	13	23
			5		3	5				5	4						

9511-A TYPESETTING AND COMPOSING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with setting type by hand or machine and composing and arranging type and spacing in preparation for printing. Worker functions include: compiling data from work sheets to determine type and page form requirements; operating or tending linotype, monotype, phototypesetting, type casting, typesetting and photocomposing machines; working precisely and skilfully when setting and arranging type by hand; and comparing proofs from assembled type for correct type size, style and layout. Work activities include: selecting type fonts; arranging and locking up type in proper sequence for pages; correcting errors in assembled type; and performing minor maintenance and adjustments to typecasting and typesetting machines.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the techniques of hand composing type and arranging type form, and reasoning ability to determine type size, style and layout from worksheet; verbal ability to use and interpret printing terminology and follow a variety of oral and written instructions and specifications; spatial perception to visualize, from specifications, the desired arrangement and appearance of final layouts; form perception to make accurate visual comparisons of proof forms and layouts against original or manuscript copies, and to detect misalignment of printed material, improper spacing and other compositional defects; clerical perception to avoid and detect errors when setting type and reading copy; eye-hand-finger co-ordination to read from original copy and simultaneously set type by hand in correct compositional sequence; finger dexterity to make rapid, accurate and nimble finger movements when selecting type from type case; manual dexterity to use hands skilfully in operating table saws, mitering machines or proof presses; physical capacity to extend the arms and hands when selecting and arranging type or operating proof presses, and sufficient strength to lift and carry trays of type and locked page forms weighing up to fifty pounds; near visual acuity to avoid errors when selecting and arranging type; capacity to work while exposed to continuous noise from typecasting and typesetting machines.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: for most occupations, ten to eleven years of general education; a three to six-year apprenticeship program, in some areas provincially regulated, or a similar form of on-the-job training; completion of certification or other provincial requirements; for lesser skilled occupations, one month to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to more skilled occupations within the chapter. Workers with creative ability may advance to occupations concerned with layout and designing in the advertising field. Those with supervisory potential may advance to 9510-130 FOREMAN, TYPESETTING AND COMPOSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are usually to occupations requiring similar skills within the chapter or with limited additional training, to other appropriate occupations in Minor Group 951, PRINTING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

9511-110 COMPOSITOR
9511-114 IMPOSER
9511-118 MAKE-UP MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	3	3	5	5	L-M47	I	3	7	91	0Y
			3	4		3											

9511-B TYPESETTING AND COMPOSING OCCUPATIONS 564, 582, 584, 682

WORK PERFORMED: This chapter includes occupations concerned with setting type by hand or machine and composing and arranging type and spacing in preparation for printing. Worker functions include: compiling data from work sheets to determine type and page form requirements; operating or tending linotype, monotype, photo-typesetting, type casting, typesetting and photocomposing machines; working precisely and skilfully when setting and arranging type by hand; and comparing proofs from assembled type for correct type size, style and layout. Work activities include: selecting type fonts; arranging and locking up type in proper sequence for pages; correcting errors in assembled type; and performing minor maintenance and adjustments to typecasting and typesetting machines.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the principles, operation and applications of typecasting and typesetting machinery and equipment, and reasoning ability to determine causes of malfunctions; verbal ability to use and interpret printing terminology and follow a variety of oral and written instructions; form perception to detect errors on work tickets or casting instructions relating to size and style of type or length and thickness of lines to be cast; clerical perception to avoid and detect errors in setting type and reading copy; eye-hand co-ordination and manual and finger dexterity to read from original copy while simultaneously operating keyboard-controlled machines, and to thread tape through feed mechanisms; physical capacity to extend the arms and hands to perform minor adjustments to equipment, and to sit for extended periods of time while operating keyboard-controlled machines; near visual acuity to avoid errors when reading original copy and simultaneously selecting letters and characters on keyboard-controlled machines; capacity to work while exposed to continuous noise from typecasting and typesetting machines; adaptability to conditions in which there is a risk of being burned from molten metal and hot-cast slugs, particularly important for 9511-122 LINOTYPE OPERATOR and 9511-134 TYPE-CASTING-MACHINE OPERATOR.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: for most occupations, ten to eleven years of general education; a three to six-year apprenticeship program, in some areas provincially regulated, or a similar form of on-the-job training; completion of certification or other provincial requirements; for lesser skilled occupations, one month to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to more skilled occupations within the chapter. Workers with creative ability may advance to occupations concerned with layout and designing in the advertising field. Those with supervisory potential may advance to 9510-130 FOREMAN, TYPESETTING AND COMPOSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are usually to occupations requiring similar skills within the chapter or with limited additional training, to other appropriate occupations in Minor Group 951, PRINTING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

9511-122	LINOTYPE OPERATOR	9511-138	PHOTO-TYPESETTER OPERATOR
9511-130	BRAILLE-STEROGRAPH-MACHINE OPERATOR	9511-142	MONOTYPE-KEYBOARD OPERATOR
9511-134	TYPE-CASTING-MACHINE OPERATOR		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3 4	4	4 3	3 4	3 4	3 4	3 4	3 4	5	5	S-L47	I	4-3	7-5	91	Y02

9511-D TYPESETTING AND COMPOSING OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with setting type by hand or machine and composing and arranging type and spacing in preparation for printing. Worker functions include: compiling data from work sheets to determine type and page form requirements; operating or tending linotype, monotype, photo-typesetting, type casting, typesetting and photocomposing machines; working precisely and skilfully when setting and arranging type by hand; and comparing proofs from assembled type for correct type size, style and layout. Work activities include: selecting type fonts; arranging and locking up type in proper sequence for pages; correcting errors in assembled type; and performing minor maintenance and adjustments to typecasting and typesetting machines.
APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the principles and uses of typesetting or photocomposing machines and to exercise judgment in determining causes of malfunctions; spatial perception to visualize slugs of composed type as produced by machine from perforated tape; form perception to visualize slugs of composed type as produced by machine from perforated tape; form perception to make visual comparisons of operating units to detect malfunctions of keyboard, tape feeding or other machine mechanisms; eye-hand co-ordination and finger dexterity to load machines with tape or film and to depress keys on keyboard-controlled machines when clearing stoppages; manual dexterity to use hand tools while performing minor adjustments to machines; physical capacity to stand for extended periods while tending machines; near visual acuity to avoid errors, make adjustments to machines, select type font according to size and face of type, and to set line spacing; capacity to work while exposed to continuous noise from machines.
TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: for most occupations, ten to eleven years of general education; a three to six-year apprenticeship program, in some areas provincially regulated, or a similar form of on-the-job training; completion of certification or other provincial requirements; for lesser skilled occupations, one month to one year of on-the-job training.
ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to more skilled occupations within the chapter. Workers with creative ability may advance to occupations concerned with layout and designing in the advertising field. Those with supervisory potential may advance to 9510-130 FOREMAN, TYPESETTING AND COMPOSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.
TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are usually to occupations requiring similar skills within the chapter or with limited additional training, to other appropriate occupations in Minor Group 951, PRINTING AND RELATED OCCUPATIONS.
OCCUPATIONAL TITLES:
9511-146 TYPESETTING-MACHINE TENDER
9511-150 PHOTOCOMPOSING-MACHINE TENDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	4	4	4	3	5	5	L-47	I-5	3-2	4-3	319	2Y
						5											23Y

9512-A PRINTING PRESS OCCUPATIONS 280, 360, 380, 660, 680, 681, 682

WORK PERFORMED: This chapter includes occupations concerned with printing designs, illustrations and text on paper, textiles, sheet metal and other materials. Worker functions include: setting up, operating or tending cylinder, platen, flat bed, rotary, offset-litho, lithographic, flexographic, gravure or proof printing presses; and comparing preliminary or proof copies with work order specifications to detect printing imperfections and to ensure correct colour registration. Work activities include: obtaining job information from work orders; filling ink fountains with fountains with specified inks; testing and evaluating ink performance; adjusting press controls to rectify printing irregularities; cleaning and maintaining equipment; and feeding blank materials and offbearing printed materials from presses.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply set-up techniques and operating procedures for printing presses; spatial perception to set up proof press according to specified page form, and to operate printing presses; form perception to make precise visual comparisons and discriminations of proof forms against original copies; eye-hand-finger co-ordination to install and align printing plates on cylinders or beds or presses, or to adjust press controls to correct printing imperfections; finger dexterity to use feeler gauges or micrometers, to select and arrange type, or to thread materials through press feed mechanisms; manual dexterity to use hand tools to set up, adjust or maintain presses; colour discrimination to distinguish different colours of ink and to evaluate colour quality of printed material; physical capacity to stand for extended periods of time and to lift and carry printing plates, containers of ink or other objects weighing up to fifty pounds; near visual acuity to read gauges, thermometers and micrometers, to align printing plates, and to examine proof sheets for printing imperfections; capacity to give sustained attention to the functioning of presses while exposed to continuous noises from all types of printing shop machinery.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to eleven years of general education; a three to six-year apprenticeship program, in some areas provincially regulated, or a similar form of on-the-job training; completion of certification or other provincial requirements.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to other occupations within their individual cluster.
Experienced workers with supervisory potential may advance to 9510-122 FOREMAN, PRINTING PRESS OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are limited, but may be to occupations requiring similar skills within the chapter or with additional training, to other appropriate occupations in Minor Group 951, PRINTING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

9512-110 JOB PRINTER
9512-114 PRESSMAN, INK EVALUATION
9512-118 PROOF PRESSMAN, PHOTOENGRAVED PLATES
9512-122 ROTOGRAVURE PRESSMAN
9512-126 OFFSET PRESSMAN
9512-130 PLATEN PRESSMAN
9512-134 PROOF PRESSMAN, GRAVURE
9512-138 PROOF PRESSMAN, OFFSET LITHOGRAPHIC
9512-142 WEB PRESSMAN
9512-146 CYLINDER PRESSMAN
9512-150 LITHOGRAPHIC PRESSMAN, SHEET METAL
9512-154 PRINTER-SLOTTER OPERATOR
9512-158 EMBOSSING-PRINTER
9512-162 FLEXOGRAPHIC-OFFSET PRESSMAN, PLASTIC CONTAINERS
9512-166 FLEXOGRAPHIC PRESSMAN
9512-170 FLEXOGRAPHIC-PRINTING-CYLINDER ASSEMBLER
9512-174 THERMOGRAPHIC PRINTER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	4	$\underline{3}$	$\underline{3}$	4	$\underline{3}$	$\underline{4}$	$\underline{3}$	5	4	L-M47	I5	4-3	8-5	910	Y01
		4						$\underline{3}$		4	$\underline{2}$					91	Y0

9512-B PRINTING PRESS OCCUPATIONS 585, 680, 682, 685, 686

WORK PERFORMED: This chapter includes occupations concerned with printing designs, illustrations and text on paper, textiles, sheet metal and other materials. Worker functions include: setting up, operating or tending cylinder, platen, flat bed, rotary, offset-litho, lithographic, flexographic, gravure or proof printing presses; and comparing preliminary or proof copies with work order specifications to detect printing imperfections and to ensure correct colour registration. Work activities include: obtaining job information from work orders; filling ink fountains with specified inks; testing and evaluating ink performance; adjusting press controls to rectify printing irregularities; cleaning and maintaining equipment; and feeding blank materials and offbearing printed materials from presses.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and follow written or oral work order instructions and to apply equipment operating or tending procedures; form perception to examine proof copy of printed materials for flaws, or printed material against work order specifications; eye-hand-finger co-ordination to feed separate sheets of paper into presses, to adjust controls of presses to rectify printing irregularities, or to adjust plates or chases on cylinders or beds of presses; finger dexterity to turn thumbscrews during set-up or maintenance operations, or to thread material through press feed mechanisms; manual dexterity to use tools to set up, adjust or maintain presses; physical capacity to reach for, lift and carry objects such as printing plates, chases, inks, pastes and printed materials weighing up to fifty pounds; near visual acuity to examine proof copy or printed materials for flaws or imperfections; adaptability to unpleasant and hazardous environmental conditions such as the noise and movement of printing presses and exposure to cleaning solvents that may cause skin irritations.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; three to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to other occupations within their individual cluster, or from Cluster B to A. Experienced workers with supervisory potential may advance to 9510-122 FOREMAN, PRINTING PRESS OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are limited, but may be to occupations requiring similar skills within the chapter or with additional training, to other appropriate occupations in Minor Group 951, PRINTING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

9512-178	PRESSMAN, TRANSFERS
9512-182	PRINTER, CASES AND LININGS
9512-186	PROOF-PRESS OPERATOR, LETTERPRESS
9512-190	SAMPLE-PRINTER, TEXTILES
9512-194	PLATEN-PRESS TENDER
9512-198	PAPER-FEEDER, PRESS
9512-202	LITHOGRAPHIC-PRESS FEEDER, SHEET METAL

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	L	TEMPS.
	4	4	4	4	3	4	4	4	3	5	5	L-M47	I-56	3-2	4-3	91		20Y
			5		4	5										319		23Y

9513-A STEREOTYPING AND ELECTROTYPING OCCUPATIONS 381, 382, 482

WORK PERFORMED: This chapter includes occupations concerned with making printing plates and cylinders for use in presses and other printing equipment. Worker functions include: operating and controlling production machinery such as hydraulic presses and plating, moulding, embossing or impressing equipment used to produce stereotype or electrotype printing plates or cylinders; working to precise tolerances when setting equipment controls and correcting defects; manipulating hand and power tools to finish plates and cylinders; compiling data from work orders; computing the number of times designs are to be repeated around cylinders; and comparing finished products with specified standards to detect and correct flaws. Work activities include: electroplating moulded master plates to produce metal shells; pouring molten metal to form backing for shells; moulding matrices to cast stereotype plates; transferring designs from masters onto printing cylinders by impressing or etching; moulding rubber or plastic plates from metal masters; and mounting, trimming and finishing products to make them ready for use.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the principles and operation of production machinery such as hydraulic presses, plating equipment and stereotype-plate casters as well as the printing equipment for which the plates and cylinders are made; spatial perception to understand and visualize relationships and arrangements of plates and cylinders when installed and working in printing equipment; form perception to discern detail in pictorial or graphic material in order to determine nature of flaws in products such as electroplates, castings or matrices; eye-hand co-ordination to make quick and accurate movements in the operation of casting, impressing, trimming and finishing equipment; manual dexterity to move the hands easily and skilfully when performing activities such as clamping, inserting, removing and mounting components; sufficient strength to perform light to medium work requiring frequent lifting of plates and cylinders up to twenty-five pounds and the tightening of clamping devices by hand; near-visual acuity for aligning, machining, finishing, mounting and examining parts; capacity to work inside while exposed to noise and possible injuries from equipment; for 9513-134 BLOCKER, METAL BASE, adaptability to working in extremes of heat that may result in bodily discomfort; finger dexterity to manipulate small objects such as hand tools and measuring instruments.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to eleven years of general education; a three to six-year apprenticeship program, in some areas provincially regulated, or a similar form of on-the-job training; completion of certification or other provincial requirements.

ADVANCEMENT POSSIBILITIES: With additional training, workers in this chapter may advance to occupations requiring higher skills within their individual cluster. Experienced workers with supervisory potential may advance to 9510-126 FOREMAN, STEREOTYPING AND ELECTROTYPING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities for workers in this chapter are limited, but may be to occupations requiring similar skills within the chapter or, with additional training, to other appropriate occupations in Minor Group 951, PRINTING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

9513-110 ELECTROTYPER
9513-114 STEREOTYPER
9513-118 CYLINDER-IMPRESSER OPERATOR
9513-122 PLATE FINISHER
9513-126 CLAMPER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	3	3	5	5	L-M47	I56	4	7-6	910	Y01
			3	2	2		2	2	2							91	

9514 - PRINTING-ENGRAVING, EXCEPT PHOTOENGRAVING OCCUPATIONS

281, 380, 581, 681, 682, 684

WORK PERFORMED: This chapter includes occupations concerned with engraving or etching plates, dies or cylinders used in printing. Worker functions include: analyzing data on production lay-out sheets to determine engraving or etching requirements necessary to produce the desired pattern; working with precision to hand engrave ornamental, pictorial or textual representations on metal plates, cylinders or dies; setting up or operating transfer presses or pantograph machines; and comparing proof impressions of engraved design with original copy to verify conformance to specifications. Work activities include: painting cylinders with acid-resistant coatings to control etching in acid bath; applying acids to etch designs on copper-plated cylinders or zinc plates; and correcting engraving or etching errors.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply engraving or etching techniques and reasoning ability to interpret detailed instructions furnished in written, oral or diagrammatic form; spatial perception to visualize position of engraved or etched pattern on plates or cylinders while studying copy of specified arrangement on a two-dimensional surface; form perception to make accurate visual comparisons when checking proof impressions of engraved design with original copy and to visually detect imperfections in new and used metal printing rollers; eye-hand co-ordination when tracing outline of designs or lettering on rubber, plastic or metal plates, or when brushing acid-resistant coating over specified areas of printing cylinders to control etching in acid bath; finger dexterity to manipulate the fingers nimbly and accurately when using a variety of engraving and stippling tools, when feeling surface of etched cylinders to detect processing defects, or when using straight-edge and pencil to lay out reference lines on plates; manual dexterity to use hand tools to set up lathes and pantograph machines or when hand engraving plates or cylinders; capacity to lift plates or cylinders weighing up to twenty pounds and to extend the arms and hands when pulling chain of overhead hoists or pushing heavy printing cylinders along hoist tracks; near visual acuity to trace outline of designs precisely onto printing plates and to visually detect pinholes, scratches or other flaws during etching process, and depth perception when hand engraving designs to precise depths to produce the desired effect; good colour vision for 9514-126 ENGRAVER, TEMPLATE, 9514-142 PANTOGRAPHER and 9514-150 STAGER to accurately recognize colour similarities or differences; adaptability to conditions where there are obnoxious fumes and odours from acids, alcohol or acid-resistant paints.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to twelve years of general education; for most occupations, a three to five-year company sponsored apprenticeship program or a similar form of on-the-job training; for other occupations, three months to one year of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: With additional training workers may advance to higher skilled occupations within the chapter. Experienced workers with supervisory potential may advance to 9510-118 FOREMAN, PRINTING-ENGRAVING, EXCEPT PHOTOENGRAVING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar skills within the chapter, or with limited additional training to appropriate occupations in Chapter 8391, ENGRAVERS, ETCHERS AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

9514-110 DIE MAKER, HAND
9514-114 ENGRAVER, LETTER
9514-118 ENGRAVER, PICTURE
9514-122 SIDEROGRAPHER
9514-126 ENGRAVER, TEMPLATE
9514-130 ETCHER, GRAVURE
9514-134 PANTOGRAPH SETTER
9514-138 FLEXIBLE-PLATE ENGRAVER, HAND
9514-142 PANTOGRAPHER
9514-146 PRINT-ROLLER REPAIRER
9514-150 STAGER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	2	4	3	2	3	5	3	S-L47	I7	4-3	7-3	910	Y0
		4	4	2	3	5		3		4	4					91	

9515 - PHOTOENGRAVING AND RELATED OCCUPATIONS

282, 331, 381, 382, 482, 681, 682, 684, 685

WORK PERFORMED: This chapter includes occupations concerned with preparing metal or plastic printing plates or cylinders for letterpress, lithography or gravure printing processes. Worker functions include: working precisely to etch, sensitize and finish printing plates, or to mount or mortise negatives and diapositives, compiling information regarding the techniques, processes and materials required to produce desired layout; operating and controlling equipment such as scanning machines and cameras; manipulating stylus, graver or other small hand tools to correct imperfections on film or plates; and comparing processed film or plate with original copy. Work activities include: photographing copy; developing exposed film; stripping negatives or diapositives; transferring images; and etching printing plates or cylinders.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to acquire a knowledge of plate making and to apply the techniques involved, and reasoning ability to detect and correct errors; spatial perception to visualize final etched printing plates or cylinders while studying copy of layout on a two-dimensional surface; form perception to discern detail in pictorial or graphic material in order to detect minute flaws in etched plates or cylinders; eye-hand co-ordination to make accurate and precise movements when adjusting cameras or controls on scanning or etching machines; finger and manual dexterity to manipulate small objects such as engraving tools or artist's brushes, and to work rapidly and accurately with the hands when using delicate films, strong acids or opaquing liquids; colour discrimination to accurately recognize similarities or differences in colours and tones in the preparation of multicolour reproductions; physical capacity to do a significant amount of walking or standing, to perform light work requiring frequent lifting of plates and cylinders weighing from ten to twenty pounds, and to extend the arms and hands to control equipment, grasp fine tools, and feel plates and cylinders for finish; near-visual acuity to detect imperfections and misalignments, and to do fine hand work and touch-up work.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: for most occupations, ten to eleven years of general education; a three to six-year apprenticeship program, in some areas provincially regulated, or a similar form of on-the-job training; completion of certification or other provincial requirements; for lesser skilled occupations, one month to one year of on-the-job training.

ADVANCEMENT POSSIBILITIES: Advancement possibilities for workers in this chapter may be to other more highly skilled occupations within the chapter. Workers with creative ability may advance to occupations concerned with layout and design in the advertising field. Those with supervisory potential may advance to 9510-114 FOREMAN, PHOTOENGRAVING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities are limited but may be to other occupations requiring similar skills within the chapter, or with additional training, to appropriate occupations in Minor Group 951, PRINTING AND RELATED OCCUPATIONS.

OCCUPATIONAL TITLES:

9515-110	PHOTOENGRAVING FINISHER
9515-114	SCANNING-MACHINE OPERATOR, COLOUR CORRECTIONS
9515-118	SCANNING-MACHINE OPERATOR, COLOUR SEPARATIONS
9515-122	PLATEMAKER-PHOTOENGRAVING
9515-126	CAMERAMAN, PHOTOGRAVURE
9515-130	CONTACT PRINTER
9515-134	ETCHER, PHOTOENGRAVING
9515-138	STRIPPER-LAYOUTER
9515-142	TRACER-TRANSFERRER
9515-146	RETOUCHER, PHOTOENGRAVING
9515-150	STRIPPER
9515-154	BRIGHT-TYPE PROCESSOR
9515-158	STEP-AND-REPEAT-MACHINE OPERATOR
9515-162	ELECTROSTATIC CAMERA OPERATOR
9515-170	PHOTO-STENCIL MAKER
9515-166	CARBON-TISSUE TRANSFERRER
9515-174	PLATE GRAINER
9515-178	PRINT TRANSFERRER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3 4	3	2 3	4	3	3 2	3	5	3 4 2	L47	I	4-3	8-4	91	OY

9517-A BOOKBINDING AND RELATED OCCUPATIONS

WORK PERFORMED: This chapter includes occupations concerned with binding books, pamphlets, business forms and other printed matter by hand and machine. Worker functions include: compiling information from production specifications to determine machine set up; working with precision to bind and finish books, documents and periodicals by hand; and setting up, operating or tending machines that cut, fold collate, stitch, staple or bind printed material; and manipulating hand tools to install and adjust guides, clamps, rollers and other parts of bookbinding machines. Work activities include: forming and gathering signatures and sewing them together by hand or machine to form book bodies; loading covers, sheets, signatures or other materials into machines; moving controls to start, stop and regulate machines; applying decorations and lettering to bound books; and examining books for improper arrangement, tears, imperfect bindings and other defects.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the principles and techniques of bookbinding, and to acquire the skills needed to manually bind and finish books; spatial perception to visualize the final shape and appearance of bound books; form perception to detect damaged covers, cloth backing, head bands or other defects when repairing or restoring old books; eye-hand co-ordination and finger dexterity to sew signatures by hand or machine and to trim and cut covers or edges of book, using shears or handcutters; manual dexterity to skilfully use heated hand tools and stamping machine to decorate book covers; physical capacity to perform work ranging from sedentary to medium, and to reach for and handle a variety of tools and materials; near visual acuity to set up machines, read measuring devices and detect imperfections in bound material; adaptability to working while exposed to high noise levels from bookbinding machinery.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; a five-year company sponsored apprenticeship program or a similar form of on-the-job training.

ADVANCEMENT POSSIBILITIES: Experienced workers with supervisory potential may advance to 9510-110 FOREMAN, BOOKBINDING AND RELATED OCCUPATIONS. See also Chapter 990 FOREMEN OCCUPATIONS for qualifications profile.

TRANSFER POSSIBILITIES: Possibilities for transfer are very limited because of the high degree of specialization.

OCCUPATIONAL TITLE:

9517-110 BOOKBINDER, HAND

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	3	3	4	4	L-47	I	4	8	190	Y01

9517-C BOOKBINDING AND RELATED OCCUPATIONS

682, 684, 685

WORK PERFORMED: This chapter includes occupations concerned with binding books, pamphlets, business forms and other printed matter by hand and machine. Worker functions include: compiling information from production specifications to determine machine set up; working with precision to bind and finish books, documents and periodicals by hand; and setting up, operating or tending machines that cut, fold collate, stitch, staple or bind printed material; and manipulating hand tools to install and adjust guides, clamps, rollers and other parts of bookbinding machines. Work activities include: forming and gathering signatures and sewing them together by hand or machine to form book bodies; loading covers, sheets, signatures or other materials into machines; moving controls to start, stop and regulate machines; applying decorations and lettering to bound books; and examining books for improper arrangement, tears, imperfect bindings and other defects.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand apply the techniques and procedures required to set up, operate or tend a variety of book binding machines and to exercise judgment to determine cause of malfunction; form perception to detect imperfect bindings, incomplete cuts, incorrect stitch lengths or torn, loose and uneven pages; eye-hand co-ordination to align materials in and hand feed machines, and to use measuring devices or adjust controls to regulate size of cut or machine speed; manual dexterity to skilfully use hand tools to set up or maintain equipment; physical capacity to perform work ranging from sedentary to medium, and to reach for and handle a variety of tools and materials; near visual acuity to set up machines, read measuring devices and detect imperfections in bound material; adaptability to working while exposed to high noise levels from bookbinding machinery; for 9517-138 BOOK-SEWING-MACHINE OPERATOR: eye-hand-foot co-ordination to position signatures on feed arms and depress pedal to sew, cut stitches and paste and sections.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to eleven years of general education; six months to four years of on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Some workers in C may be involved in on-the-job training or apprenticeship programs and advance progressively to occupations requiring higher skills. Experienced workers with supervisory potential may advance to 9510-110 FOREMAN, BOOKBINDING AND RELATED OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Workers in C may transfer to other occupations requiring similar skills within this chapter.

OCCUPATIONAL TITLES:

9517-126	BOOKBINDER, MACHINE
9517-130	FOLDING-MACHINE OPERATOR
9517-134	COLLATING-MACHINE OPERATOR
9517-138	BOOK-SEWING-MACHINE OPERATOR
9517-142	CUTTING-MACHINE OPERATOR
9517-146	BINDERY WORKER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	4	$\underline{4}$	4	$\underline{4}$	4	$\underline{3}$	5	5	S-M47	I-5	3-2	6-4	913	Y0
	4		5		$\underline{3}$	5	$\underline{3}$			$\underline{4}$							2Y

9518 - OCCUPATIONS IN LABOURING AND OTHER ELEMENTAL WORK, PRINTING AND RELATED ACTIVITIES

686, 687

WORK PERFORMED: This chapter includes occupations concerned with labouring or other elemental work in printing or related fields. Worker functions include: handling printing cylinders, hand tools and equipment; and feeding printed sheets and other materials into various bindery machines. Work activities include: assisting in the preparation of engraved copper-plated printing cylinders; jogging sheets or signatures to align edges; fanning through sheets to ensure they are in specified order; stacking paper in machines that fold, cut, gather, staple or glue sheets into books, pamphlets, pads or similar products; trimming and rounding sewed signatures; and pasting covers on sewed signatures to form books.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and follow simple work instructions; eye-hand co-ordination and manual dexterity to handle materials, tools, or equipment controls; finger dexterity to fan through packs of sheets or signatures to ensure that they are in a specified order; sufficient strength to perform work ranging from light to heavy, requiring the lifting of materials, tools or printing cylinders, and the pushing of handtrucks. Additionally, for 9518-110 BINDERY-MACHINE FEEDER, capacity to work around noisy machinery, and for 9518-114 ETCHER HELPER, GRAVURE, good vision in order to clean printing cylinders, and adaptability to conditions such as exposure to burns, fumes and odours from acid baths.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: six to eight years of general education; on-the-job training ranging from a short demonstration to one month.

ADVANCEMENT POSSIBILITIES: These occupations are considered entry jobs and advancement is normally to more highly skilled occupations in Minor Group 951, PRINTING AND RELATED OCCUPATIONS for workers who demonstrate ability, interest and initiative.

TRANSFER POSSIBILITIES: Transfer may be to other occupations requiring similar skills within this chapter, or to appropriate occupations in labouring and elemental work found in other chapters.

OCCUPATIONAL TITLES:

9518-110	BINDERY-MACHINE FEEDER
9518-114	ETCHER HELPER, GRAVURE
9518-118	FORWARDER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	5	4	4	5	4	4	3	5	5	L-M47	I567	1	2	31	23
		5						3		4	4						

9531-B POWER STATION OPERATORS

261, 262, 282, 362, 462, 662, 682

WORK PERFORMED: This chapter includes occupations concerned with generating electricity for distribution over wide areas, or for local consumption. Worker functions include: operating and controlling electrical generators and power source equipment in hydro, thermal, internal combustion or atomic-energy power plants; analyzing power demands; comparing power output as indicated by instrument readings; and communicating with other workers or power stations to co-ordinate and synchronize system operation. Work activities include: monitoring central switchboard equipment; de-energizing malfunctioning circuits and equipment to ensure safety of maintenance workers; inspecting automatic controls and recorders to verify performance of equipment; actuating switching controls to distribute power load among generators according to power demands; and recording operational data in log books.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the principles of power generation, and reasoning ability to determine, through instrument readings if equipment is functioning properly; form perception to observe power-load information on graphs and charts for comparison with specified values; clerical perception to avoid errors in copying figures, reading instruments and recording tabular material; eye-hand co-ordination to operate switches and controls while monitoring instruments; manual dexterity and the capacity to extend the arms and hands to use testing equipment or to clean and lubricate components; physical capacity to perform work ranging from sedentary to medium, requiring pushing, pulling, lifting and carrying equipment weighing up to thirty pounds; capacity to speak clearly and receive information accurately; good eyesight and colour vision to recognize signals provided by coloured panel lights and to read instruments and charts in bright or dimly lit situations; numerical ability to calculate load estimates for demand forecasts; adaptability to working while exposed to environmental noise, and to physical hazards such as falls, moving mechanical parts, or exposed electrical conductors.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eleven to twelve years of general education; for some occupations, a one to three-year program in power engineering technology at a community college and one or more years of on-the-job training; or, a two to four-year company sponsored apprenticeship program, which may be provincially regulated and which provides for regular periods of attendance at a trade school, or a similar form of on-the-job training; completion of provincial or, for nuclear power, federal certification requirements; for other occupations, six months to one year of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: With additional training, some workers may advance to occupations requiring higher skills within the chapter. Experienced workers may also advance by taking employment in larger power stations with increased responsibility and remuneration. Those with supervisory potential may advance to 9510-110 FOREMAN, POWER STATION OPERATORS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, transfer possibilities are very limited, however, some Power Station Operators, qualified in the operation of stationary engines and related equipment, may transfer to appropriate occupations in Chapter 9533, STATIONARY ENGINE AND AUXILIARY EQUIPMENT OPERATING AND MAINTAINING OCCUPATIONS.

OCCUPATIONAL TITLES:

9531-114 SUB STATION INSPECTOR
9531-118 DIESEL-PLANT OPERATOR
9531-122 POWER-SWITCHBOARD OPERATOR
9531-126 POWER-SWITCHBOARD OPERATOR, CHEMICAL
9531-130 POWER-CONTROL-ROOM MAN
9531-134 NUCLEAR-REACTOR OPERATOR
9531-138 HYDRO-ELECTRIC-STATION OPERATOR
9531-142 TURBINE OPERATOR, STEAM
9531-146 POWERMAN, CENTRAL OFFICE
9531-150 SUB STATION OPERATOR
9531-154 FEEDER-SWITCHBOARD OPERATOR
9531-158 RECTIFIER OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	$\underline{3}$ 4	3	$\underline{3}$	$\underline{3}$	$\underline{4}$	4	$\underline{4}$ $\underline{3}$	5	4	S-M4567	I56	4-3	7-5	91	YO

9533-A STATIONARY ENGINE AND AUXILIARY EQUIPMENT OPERATING AND MAINTAINING OCCUPATIONS

262, 282, 362, 382, 562, 682

WORK PERFORMED: This chapter includes occupations concerned with providing steam, heat, refrigeration, ventilation, air-conditioning, and electrical and mechanical power to buildings, industrial plants, work sites or other installations. Worker functions include: operating, controlling or tending equipment such as boilers, furnaces, compressors, blowers, pumps, motors and generators; compiling data from recording instruments or from observation of equipment; and analyzing information to ensure specified operating conditions and output are maintained. Work activities include: moving controls to start, stop and regulate equipment; cleaning, lubricating and maintaining machinery in good running order; monitoring temperature, pressure, fuel flow and other instrument readings; and maintaining log on fuel consumption, power output and other operational data.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand and apply procedures for the safe and efficient operation and maintenance of stationary engines, allied systems, and auxiliary equipment, and reasoning ability to determine causes of malfunction and to take appropriate corrective action; numerical ability to quickly and accurately compute such things as latent heat, thermal units or combustion efficiency; spatial perception to determine relationships in drawings ranging from simple elevations and plan views to isometric scale drawings and to relate this information to operational equipment; form perception to visually compare parts for wear, to repair or replace such things as malfunctioning valves; clerical perception to avoid mistakes in computing data such as duel mixtures or pollutant emissions; eye-hand co-ordination and manual dexterity to make rapid and accurate adjustments or repairs to equipment; physical strength for light to medium work to carry tools and parts, and agility to climb stairs and ladders, and crouch, crawl, kneel or balance on scaffolds to make adjustments or repairs to equipment; good hearing to detect and determine malfunctions in equipment; good vision to read gauges and charts and judge distances; adaptability to exposure to extremes of heat or cold and noise and vibration from fans, turbines and compressors; adaptability to physical hazards such as explosions, and to unpleasant atmospheric conditions resulting from fumes, odors, dusts and gases.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; for some occupations, a one to three-year program of studies at an institute of technology or trade school, and one or more years of on-the-job training; or a one to four-year apprenticeship program, which may be provincially regulated and provide for regular periods of attendance at a trade school, or a similar form of on-the-job training; completion of provincial certification requirements; for other occupations, six months to one year of on-the-job training and related experience.

ADVANCEMENT POSSIBILITIES: With further training, experience and the completion of examinations, workers who are qualified in stationary engineering may advance progressively from Fourth Class to Third, Second and First Class levels. Other workers in this chapter may advance to occupations requiring higher skills or with additional training, become qualified in stationary-engineering. Experienced workers with supervisory potential may advance to 9530-114 FOREMAN, STATIONARY ENGINE AND AUXILIARY EQUIPMENT OPERATING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities may be to other occupations requiring similar skills or qualifications within the chapter, or to employment in different types of establishments or industrial installations where operating equipment such as boilers, pumps and compressors is integral with the process.

OCCUPATIONAL TITLES:

9533-110 BOILER OPERATOR
9533-114 REFRIGERATION OPERATION
9533-118 DIESEL-ENGINE OPERATOR, STATIONARY
9533-122 STATIONARY ENGINEER, GENERAL
9533-126 BOILER FIREMAN, PULVERIZED COAL
9533-130 COAL-GAS-EXHAUST OPERATOR
9533-134 COMPRESSOR OPERATOR, CAISSON
9533-138 POWERMAN, MOBILE GENERATOR
9533-142 AUXILIARY-EQUIPMENT OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	4	4	4	4	4	4	5	L-M23467	I-B3567	4-3	7-5	91	YO
		4		4						5							

9533-B STATIONARY ENGINE AND AUXILIARY EQUIPMENT OPERATING AND MAINTAINING OCCUPATIONS

485, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with providing steam, heat, refrigeration, ventilation, air-conditioning, and electrical and mechanical power to buildings, industrial plants, work sites or other installations. Worker functions include: operating, controlling or tending equipment such as boilers, furnaces, compressors, blowers, pumps, motors and generators; compiling data from recording instruments or from observation of equipment; and analyzing information to ensure specified operating conditions and output are maintained. Work activities include: moving controls to start, stop and regulate equipment; cleaning, lubricating and maintaining machinery in good running order; monitoring temperature, pressure, fuel flow and other instrument readings; and maintaining log on fuel consumption, power output and other operational data.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the procedures for the operation of stationary engines and auxiliary equipment, and to carry out instructions correctly; form perception to observe wear in parts and detect items in need of repair; eye-hand co-ordination and manual dexterity to adjust equipment controls and make repairs; physical strength to carry hand tools and parts, agility to climb stairs and ladders, and capacity to manipulate tools while in awkward positions; good vision to read gauges and charts in bright or dimly lit locations, monitor equipment for efficiency and inspect parts or components for excessive wear; adaptability to conditions involving constant exposure to noise and vibration from operating equipment, and where the danger of possible explosion may be present.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: eight to ten years of general education; one to six months of on-the-job training.

ADVANCEMENT POSSIBILITIES: With further training, experience and the completion of examinations, workers who are qualified in stationary engineering may advance progressively from Fourth Class to Third, Second and First Class levels. Other workers in this chapter may advance to occupations requiring higher skills or with additional training, become qualified in stationary engineering. Experienced workers with supervisory potential may advance to 9530-114 FOREMAN, STATIONARY ENGINE AND AUXILIARY EQUIPMENT OPERATING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities may be to other occupations requiring similar skills or qualifications within the chapter, or to employment in different types of establishments or industrial installations where operating equipment such as boilers, pumps and compressors is integral with the process.

OCCUPATIONAL TITLES:

9533-146	AIR-COMPRESSOR TENDER
9533-150	FIREMAN, LOW PRESSURE
9533-154	HUMIDIFIER MAN
9533-158	STEAM-CLEANING-MACHINE TENDER
9533-162	HEATING-AND-VENTILATION-EQUIPMENT TENDER
9533-166	POWERHOUSE HELPER, COAL
9533-170	STATIONARY-ENGINEER HELPER
9533-174	TEMPERATURE MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	4	4	4	3	4	5	L-M2347	I-B56	3-2	4-3	391	2Y0
						5				5						31	2Y3

9535-A WATER AND SANITATION UTILITIES EQUIPMENT OPERATING OCCUPATIONS

262, 282, 364, 482, 582

WORK PERFORMED: This chapter includes occupations concerned with the purification, treatment and distribution of water; and the treatment and disposal of sewage, industrial waste, garbage or refuse. Worker functions include: operating, controlling or tending equipment in water-purification plants, sewage-treatment plants, reservoirs or incinerators; compiling data from recording instruments or from observation of equipment to ensure specified processing conditions are maintained; manipulating valve controls or moving levers and wheels to open and close gates that regulate flow of water, or to start, stop or regulate processing operations; and handling implements to clean and prevent blockage of waterworks intakes. Work activities include: monitoring control panels and interpreting meter and gauge readings; collecting samples of water or sewage at various processing stages for analysis; removing ashes from incinerators; contacting users of irrigation system to determine their requirements; measuring or estimating amount of water diverted to water users; and preparing records on water output, equipment malfunctions and other operational data.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand the principles of design, construction, function and operation of water and sanitation facilities; spatial perception to visualize and understand the changes effected in rates of flow or supply levels; form perception to make visual comparisons between current information on charts and graphs and past records; clerical ability to avoid perceptual errors in compiling reports on instrument readings or quality tests; eye-hand co-ordination and manual dexterity to turn control knobs, move actuating switches or levers and to position charts and graphs in recording instruments; physical fitness to stoop, crouch and reach to repair breaks in irrigation systems and to open and close valves positioned at various heights; good visual acuity near and far, to read information from gauges or charts or to judge distances; adaptability to possible exposure to a variety of hazards, or injuries from falls or chemical burns; eye-hand-foot co-ordination when driving motor vehicles; good hearing to identify unusualy sounds in operating equipment.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; six months to four years of on-the-job training and related experience, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: With additional training, some workers in this chapter may advance to occupations requiring higher skills within their individual cluster. Experienced workers may also advance by moving to similar occupations in more complex facilities. Those with supervisory potential may advance to 9530-118 FOREMAN, WATER AND SANITATION UTILITIES EQUIPMENT OPERATING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: With limited additional training, some workers may transfer to occupations requiring similar basic skills and experience within this chapter, or in other chapters, for example to appropriate occupations in Chapter 8113, MIXING, SEPARATING, FILTERING AND RELATED OCCUPATIONS, MINERAL ORES.

OCCUPATIONAL TITLES:

9535-110	WATER-PURIFICATION-PLANT OPERATOR
9535-114	SEWAGE-PLANT OPERATOR
9535-118	DITCH RIDER
9535-126	PUMP-STATION OPERATOR
9535-134	WATER-GATE OPERATOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	3	3	$\underline{4}$	$\underline{3}$	$\underline{3}$	$\underline{3}$	4	$\underline{3}$	5	5	L-M34567	B6	4-3	7-4	91	OY4
		4	4			$\underline{4}$	$\underline{4}$	3		$\underline{3}$	4						OY

9537-A PUMPING AND PIPELINE EQUIPMENT OPERATING OCCUPATIONS 162, 168

WORK PERFORMED: This chapter includes occupations concerned with regulating the pressure and flow of materials such as oil and natural gas through pipeline systems for processing, distribution or storage, and compressing, liquefying and recovering gases for industrial or domestic use. Worker functions include: co-ordinating activities of workers and pumping units to ensure safe and efficient movement of materials; operating or tending pumps, compressors, evaporators, refrigeration units, pneumatic conveyors and pressure regulators; manipulating valves, instrumentation controls and test apparatus. Work activities include: evaluating schedules and reports, and calculating flow, pressure and volume necessary to meet requirements; activating controls to start, stop, and regulate transmission equipment; monitoring instruments and making necessary adjustments to gas liquefication and recovery systems and gauging and testing oil in storage tanks.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to acquire a knowledge of pipeline system operation and to control the transmission of liquids and gases through these systems to meet delivery schedules and customer demands; verbal ability to co-ordinate activities of field workers at pipeline terminals, pumping stations and tank farms and to relay orders to maintenance crews and pumping or compressor stations in case or emergency; numerical ability to calculate volumes and rates of flow quickly and accurately, consistent with consumer-demand and equipment capacities; spatial perception to visualize system flow based on such factors as temperature, specific gravity and pressure of medium in relation to transmission capacities, and to estimate when tank farm, refinery or customer demand requirements are being met; clerical perception to avoid perceptual errors in preparing reports concerning stock and storage capacity, quantities or oil or gas moved or to be moved and in other operational records; near visual acuity to observe gauges and other indicators, such as pipeline flow and pressure on electronic-remote control panels and to select appropriate panel controls to regulate system operation.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; a two to four-year apprenticeship program, which may be provincially regulated, or a similar form of on-the-job training and related experience; completion of provincial certification requirements.

ADVANCEMENT POSSIBILITIES: With additional training, some workers in this chapter may advance to occupations requiring higher skills within their individual cluster. Experienced workers may also advance to larger and more complex installations. Those with supervisory potential may advance to 9530-122 FOREMAN, PUMPING AND PIPELINE EQUIPMENT OPERATING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: With additional training, workers may transfer to other occupations requiring similar basic skills and qualifications within this chapter, or to appropriate occupations in other chapters such as 9533, STATIONARY ENGINE AND AUXILIARY EQUIPMENT OPERATING AND MAINTAINING OCCUPATIONS.

OCCUPATIONAL TITLES:

9537-110 DISPATCHER, OIL
9537-118 GAS DISPATCHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	4	3 4	4	4	4	5	5	S-567	I	4	7-6	91	0Y41

9537-B PUMPING AND PIPELINE EQUIPMENT OPERATING OCCUPATIONS

282, 382, 462, 482, 582, 662, 664, 682

WORK PERFORMED: This chapter includes occupations concerned with regulating the pressure and flow of materials such as oil and natural gas through pipeline systems for processing, distribution or storage, and compressing, liquefying and recovering gases for industrial or domestic use. Worker functions include: co-ordinating activities of workers and pumping units to ensure safe and efficient movement of materials; operating or tending pumps, compressors, evaporators, refrigeration units, pneumatic conveyors a and pressure regulators; manipulating valves, instrumentation controls and test apparatus. Work activities include: evaluating schedules and reports, and calculating flow, pressure and volume necessary to meet requirements; activating controls to start, stop and regulate transmission equipment; monitoring instruments and making necessary adjustments to gas liquefication and recovery systems and gauging and testing oil in storage tanks.

APTITUDES AND CAPACITIES: Workers in this cluster require: learning ability to understand oil and gas transmission, liquefication, compression, and storage operations and to carry out the compression, pumping and storage of oil and gas as instructed or to meet delivery schedules; spatial perception to visualize flow of oil or gas through pipeline system to storage or other delivery areas, utilizing knowledge of interconnections and capacities of pipelines, valve manifolds, pumps and tanks and rate of flow of medium as modified by temperatures, pressure and specific gravities; form perception to inspect pipelines, pumps, compressors and storage tanks for visual signs of leaks, abnormal pressures or temperatures, or potential hazards such as defective electrical earthing; clerical perception to avoid perceptual errors in preparing reports, recording instrument readings and operational changes, and compiling reports on quantities processed, stored and consumed; eye-hand co-ordination and manual dexterity to start pumps, turn valves and handsheels, and use hand tools such as pipe threaders, wrenches and grease guns to operate and maintain pipelines systems and storage facilities; sufficient strength to exert up to thirty pounds pressure to move valves, and agility to climb stairs, balance on narrow catwalks and stoop and crouch to reach equipment controls; adaptability to working while subjected to loud, staccato compressor noise, exposed to mechanical and electrical hazards, burns from highly volatile materials or equipment frost burns, and atmospheric conditions involving fumes, odors, toxic and malodorous gases; good vision and hearing ability to detect, recognize and classify unusual or warning sights and sounds in operating equipment; ability to communicate quickly and accurately with superiors and assistants during emergencies.

TRAINING AND ENTRY REQUIREMENTS: Workers in this cluster normally require: ten to twelve years of general education; a two to four-year apprenticeship program, which may be provincially regulated, or a similar form of on-the-job training and related experience; completion of provincial certification requirements.

ADVANCEMENT POSSIBILITIES: With additional training, some workers in this chapter may advance to occupations requiring higher skills within their individual cluster, or from Cluster B to Cluster A. Experienced workers may also advance to larger and more complex installations. Those with supervisory potential may advance to 9530-122 FOREMAN, PUMPING AND PIPELINE EQUIPMENT OPERATING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: With additional training, workers may transfer to other occupations requiring similar basic skills and qualifications within this chapter, or to approriate occupations in other chapters such as 9533, STATIONARY ENGINE AND AUXILIARY EQUIPMENT OPERATING AND MAINTAINING OCCUPATIONS.

OCCUPATIONAL TITLES:

9537-114 COMPRESSOR OPERATOR, GAS PROCESSING
9537-122 PUMPMAN
9537-126 GAS-LIQUEFACTION-AND-REGASIFICATION-PLANT OPERATOR
9537-130 PUMPER, OILFIELD
9537-134 PRESSURE-REGULATOR MAN
9537-138 GAS-PUMPING-STATION OPERATOR
9537-142 GAUGER, OIL
9537-146 PUMPING-STATION OPERATOR
9537-150 TANK-FARM OPERATOR
9537-154 GAS-ODORIZATION-AND-SAFETY MAN

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	4	4	3	5	5	L-M24567	B567	4-3	7-5	91	OY
		3	3	4	4				4	4	4						

9551 - RADIO AND TELEVISION BROADCASTING EQUIPMENT OPERATORS 182, 282, 360, 362

WORK PERFORMED: This chapter includes occupations concerned with monitoring and controlling the operation of radio and television broadcasting equipment. Worker functions include: operating console to control and television broadcast transmitters; setting up portable and mobile equipment for broadcasting from locations distant from studio; analyzing and compiling data obtained from console meters and other indicators to determine if power output, radiated frequency and modulation percentage, fidelity of picture and other conditions meet specified standards; and co-ordinating the routing of programs via microwave or land line according to schedule. Work activities include: studying program schedule; starting and shutting down transmitters and associated equipment; testing and monitoring broadcast output; adjusting controls to obtain optimum quality of transmission; and switching circuits to provide video or sound transmission as required.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand the techniques and procedures for operating radio and television broadcasting equipment; form perception to read meter indicator values and view filmed picture to ensure that it meets established standards; clerical perception for 9551-110 MASTER-CONTROL-EQUIPMENT OPERATOR to study and verify program schedule and maintain logs of program organizations; eye-hand-finger co-ordination to operate video console, set up portable and mobile equipment, and repair or adjust equipment; colour discrimination to evaluate colour quality of transmitted picture; good hearing to make test transmission of audio equipment and to ensure that correct sound is transmitted when operating video-switcher console; visual acuity, near and far, to adjust framing, contrast, brilliance and fidelity of picture.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eleven to twelve years of general education; one to three years of courses at a community college, and three or more years of on-the-job training and experience, depending on the occupation.

ADVANCEMENT POSSIBILITIES: Advancement may be from junior to senior operator levels, or from small to larger or more complex broadcasting stations. Experienced workers with supervisory potential may advance to 9550-110 SUPERVISOR, RADIO AND TELEVISION BROADCASTING EQUIPMENT OPERATORS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Experienced operators who acquire the necessary technical knowledge may transfer to servicing equipment or instructing in audio-visual sections of educational facilities. Others may transfer to specialized work in the control and surveillance of industrial processes or traffic control applications.

OCCUPATIONAL TITLES:

9551-110	MASTER-CONTROL-EQUIPMENT OPERATOR
9551-114	BROADCAST-TRANSMITTER OPERATOR
9551-118	VIDEO-CONSOLE OPERATOR
9551-122	MOBILE-BROADCAST-EQUIPMENT SET-UP MAN
9551-126	SWITCHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	3	4	3	3	4	5	4	S-L467	B	4	7	917	YO9
	2		3	4		3			3	4	3						

9553 - TELEGRAPH OPERATORS

364, 384, 564

WORK PERFORMED: This chapter includes occupations concerned with transmitting and receiving signals or messages via radiotelegraph. Worker functions include: copying incoming messages by hand or transcribing them by typewriter and recording messages sent and received in log-book; and manipulating and operating telegraph key and equipment controls. Work activities include: calling stations to which message is to be passed; adhering to specified operating procedures; acknowledging calls and receiving traffic for own station, marking messages for local distribution and telephoning messages to local addresses.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply communications manual instructions and operating procedures and regulations; verbal ability to communicate effectively when transmitting or receiving messages via radiotelephone; clerical perception to carefully review information, transcribe and transmit messages with speed and accuracy; finger dexterity to manipulate code keys nimbly and precisely; good hearing to discriminate and select sounds.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eleven to twelve years of general education; a one to two-year program of training in radio operation and practical experience; completion of certification requirements conducted by the Federal Department of Communications.

ADVANCEMENT POSSIBILITIES: Advancement possibilities for workers in this chapter are limited, but may be to occupations requiring higher skills within the chapter or, with experience and additional training, to occupations such as 9113-122 AIRLINE-RADIO OPERATOR, 9159-114 RADIO OFFICER, and 9135-110 CENTRALIZED-TRAFFIC CONTROLLER. Those with supervisory potential may advance to 9550-118 SUPERVISOR, TELEGRAPH OPERATORS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Transfer possibilities are also limited but may be between private companies and provincial or federal government agencies.

OCCUPATIONAL TITLES:

9553-110	RADIOTELEGRAPH OPERATOR
9553-114	RADIOTELEPHONE OPERATOR
9553-118	TELEGRAPHER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	4	4	2	3	2	4	5	5	S456	I	4-3	6-5	93	Y2
				5				3	3								

9555-A SOUND AND VIDEO RECORDING AND REPRODUCTION EQUIPMENT OPERATORS

262, 282, 362, 382, 662, 684

WORK PERFORMED: This chapter includes occupations concerned with recording and reproducing video images and audio for radio and television broadcasting, and motion picture, tape and phonograph-record production. Worker functions include: operating and controlling video and audio recording and reproduction equipment; tending duplicating equipment to reproduce copies from master tapes or discs; analyzing data from scripts to determine sound and picture requirements; and compiling information concerning quality, quantity and identity of tapes produced. Work activities include: determining acoustics of premises and positioning microphones accordingly; synchronizing pictures and sound on tape-tracks; editing video and audio tapes; observing meters on consoles; monitoring audio signals and video images; and reporting equipment malfunction to producer.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the techniques of recording and reproducing video images and audio by use of electronic equipment; eye-hand-finger co-ordination and finger dexterity to set up recording and reproducing equipment, to operate controls and handle tapes or films, and to repair and maintain equipment using hand tools; good hearing to monitor audio console to regulate volume and quality of sound and balance with picture, and to eliminate or reduce extraneous sounds; near and far visual acuity to monitor moving picture screen or video-tape picture, to use densitometer, sensitometer or acoustic interferometer, and for 9555-134 MASTER-RECORD CUTTER, to observe cutting process using microscope to ensure that grooves cut are level and even; colour vision to monitor colour video tape.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; six months to four years of on-the-job training and related experience, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: With experience and additional training, workers in this chapter may advance to other occupations within the chapter. Experienced workers with supervisory potential may advance to appropriate supervisory positions such as 9550-114 SUPERVISOR, SOUND RECORDING AND REPRODUCTION EQUIPMENT OPERATORS.

TRANSFER POSSIBILITIES: Transfer for some workers may be between radio and television and the sound-and-picture departments of motion picture production. Other possibilities may be to appropriate occupations requiring similar basic skills in other chapters, for example, 9551-118 VIDEO-CONSOLE OPERATOR, 9551-126 SWITCHER, or 2799-114 AUDIOVISUAL SPECIALIST.

OCCUPATIONAL TITLES:

9555-110	SOUND MIXER
9555-114	STEREO-TAPE EDITOR
9555-118	RE-RECORDING MIXER
9555-122	VIDEO-AND-SOUND RECORDER
9555-126	VIDEO-RECORDING-EQUIPMENT OPERATOR
9555-130	SOUND-EFFECTS MAN
9555-134	MASTER-RECORD CUTTER
9555-138	SOUND-RECORDING-EQUIPMENT OPERATOR
9555-142	TELECINE OPERATOR
9555-146	DUBBING-MACHINE OPERATOR
9555-150	SOUND EDITOR

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C
	3	3	4	3	3	4	3	3	3	5	5
	2										4

PA	EC	GED	SVP	INTS.	TEMPS.
S-L4567	I	4-3	7-4	971	90Y

9557 - MOTION-PICTURE PROJECTIONISTS

WORK PERFORMED: This chapter includes Motion-Picture Projectionists concerned with producing co-ordinated motion picture and sound entertainment. Worker functions include: controlling the operation of projection and sound-reproduction equipment; and comparing the quality of projected picture and the clarity and level of sound with acceptable standards. Work activities include: visually examining and listening to equipment before use and in operation; threading film through projector; splicing broken film; oiling machine parts; and making minor adjustments and repairs to equipment.

APTITUDES AND CAPACITIES: Motion-Picture Projectionists require: learning ability to understand the operation of motion picture projection equipment and reasoning ability to determine causes of malfunctions and to take corrective action; spatial perception to visualize cause of malfunctions and to make needed adjustments; form perception to focus projected images and to examine film and parts of equipment for flaws and wear; eye-hand-finger co-ordination to make rapid and accurate adjustments to equipment; finger dexterity to nimbly lead the film through the picture aperture, around rollers and sprocket wheels; manual dexterity to move switches and controls and use hand tools in order to adjust or repair equipment; near and far visual acuity to examine operating equipment, to observe projected images and make required adjustments to controls; adaptability to possible physical hazards such as fumes, heat and fires that could originate in and around projection equipment.

TRAINING AND ENTRY REQUIREMENTS: Motion-Picture Projectionists normally require: seven to nine years of general education; a six months to one year apprenticehsip program, or a similar form of on-the-job training; completion of licensing requirements.

ADVANCEMENT POSSIBLITIES: Advancement for Motion-Picture Projectionists may be to positions requiring the operation of more complex equipment in larger establishments.

TRANSFER POSSIBILITIES: Transfer possibilities are limited and may be from one establishment to another with minor variations in duties.

OCCUPATIONAL TITLES:

9557-110 MOTION-PICTURE PROJECTIONIST

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	4	4	3	3	4	3	3	3	5	3	L4567	I6	4	6	91	OY

9591-A PHOTOGRAPHIC PROCESSING OCCUPATIONS 381, 482, 681, 682, 685

WORK PERFORMED: This chapter includes occupations concerned with processing exposed photographic still and motion-picture film. Worker functions include: compiling information to regulate exposure or immersion times; comparing reprints to determine colour, density and balance; working precisely to retouch film negatives and produce positive prints; operating or tending printing, photocopying or reproducing machines; manipulating splicing and number perforating equipment; and handling prints and identification tags. Work activities include: moving controls to start, stop, adjust or regulate film processing speeds; and cutting, mounting and finishing film negatives and prints.

APTITUDES AND CAPACITIES: Workers in this chapter require: learning ability to understand and apply the principles and procedures for processing photographic film; eye-hand-finger co-ordination and manual dexterity to adjust controls of film processing equipment and to perform touch up work in prints and negatives; finger dexterity to manipulate small objects, thread film through processing equipment, remove film from containers and strip paper backing from film surface; colour vision for those who process colour photographs; adaptability to working while exposed to skin irritation and fumes and odours caused by volatile chemicals used in film processing solutions; form perception to process film and examine negatives and prints for defects.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: ten to twelve years of general education; six months to two years or more of on-the-job training and realted experience, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Experienced workers may advance to supervisory positions in commercial establishments, or to 9590-110 FOREMAN, PHOTOGRAPHIC PROCESSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, transfer opportunities for workers in this chapter are limited, but may be between commercial photographic laboratories and those of government organizations, or to other occupations requiring similar skills in other chapters.

OCCUPATIONAL TITLES:

9591-110	PHOTOGRAPH ENLARGER	9591-122	COPY CAMERAMAN
9591-112	NEGATIVE-CONTACT-FRAME OPERATOR	9591-126	MOTION-PICTURE-FILM PRINTER
9591-114	FILM DEVELOPER	9591-130	MOTION-PICTURE-FILM DEVELOPER
9591-118	NEGATIVE RETOUCHER		

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	$\underline{3}$	4	4	3	$\underline{3}$	4	$\underline{3}$	$\underline{3}$	$\underline{3}$	5	3	L47	I	4-3	7-4	910 91	Y09

9591-B PHOTOGRAPHIC PROCESSING OCCUPATIONS 487, 684, 685, 687

WORK PERFORMED: This chapter includes occupations concerned with processing exposed photogrphic still and motion-picture film. Worker functions include: compiling information to regulate exposure or immersion times; comparing reprints to determine colour, density and balance; working precisely to retouch film negatives and produce positive prints; operating or tending printing, photocopying or reproducing machines; manipulating splicing and number perforating equipment; and handling prints and identification tags. Work activities include: moving controls to start, stop, adjust or regulate film processing speeds; and cutting, mounting and finishing film negatives and prints.

APTITUDES AND CAPACITITIES: Workers require: learning ability to understand and carry out the more routine film processing tasks; eye-hand-finger co-ordination and manual dexterity to adjust controls of film processing equipment and to perform touch up work in prints and negatives; finger dexterity to manipulate small objects, thread film through processing equipment, remove film from containers and strip paper backing from film surface; colour vision for those who process colour photographs; adaptability to working while exposed to skin irritation and fumes and odours caused by volatile chemicals used in film processing solutions.

TRAINING AND ENTRY REQUIREMENTS: Workers in this chapter normally require: eight to ten years of general education; two weeks to six months of on-the-job training, depending on the complexity of the occupation.

ADVANCEMENT POSSIBILITIES: Workers in this chapter who have the necessary ability and interest may, with additional training, advance to occupations requiring higher skills within that cluster or in Cluster A. Experienced workers may advance to supervisory positions in commercial establishments, or to 9590-110 FOREMAN, PHOTOGRAPHIC PROCESSING OCCUPATIONS. See also Chapter 990, FOREMEN OCCUPATIONS, for qualifications profile.

TRANSFER POSSIBILITIES: Because of specialization, transfer opportunities for workers in this chapter are limited, but may be between commercial photographic laboratories and those of government organizations, or to other occupations requiring similar skills in other chapters.

OCCUPATIONAL TITLES:

9591-134	PRINTER TENDER
9591-138	X-RAY-PLATE DEVELOPER
9591-142	NEGATIVE CUTTER
9591-146	FILM-DEVELOPING-MACHINE TENDER
9591-150	FILM-PRINTING-MACHINE TENDER
9591-154	FILM SPLICER
9591-158	PRINT FINISHER
9591-162	FILM CUTTER
9591-166	FILM MOUNTER
9591-170	FILM NUMBERER

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	4	4	4	4	4	5	4	4	3	5	5	L47	I	3-2	4-2	319	23Y
			5			4	3		4	4						31	

990-A FOREMEN OCCUPATIONS (Administrative Foremen)

WORK PERFORMED: This chapter includes occupations concerned with supervising and co-ordinating activities or workers engaged in farming; forestry and logging; mining and quarrying; processing; machining; product handling, printing, utilities and communications equipment. Worker functions include: determining assignments, manpower requirements, work methods, materials and schedules required; and assigning duties to workers, interpreting work procedues and ensuring tasks are satisfactorily completed. Work activities include: requisitioning materials and supplies; hiring and training workers; setting up machines and equipment; inspecting materials received; enforcing safety regulations; preparing production reports; recommending measures to improve work methods, equipment performance, quality of product or service, and working conditions; and conferring with workers to resolve complaints and grievances.
APTITUDES AND CAPACITIES: learning ability to understand and effectively apply supervisory principles and practices and the techniques appropriate to the field of work supervised; verbal ability to communicate effectively with superiors and sub-ordinates and to understand work orders; spatial perception to understand the functional nature of machines and equipment and to interpret technical drawings.
TRAINING AND ENTRY REQUIREMENTS: 10 to 14 years of general or technical education with varying amounts of successful lower level job experience in similar fields. Some companies may accept less than 10 years of formal education where the employee has demonstrated initiative, work ability and leadership qualities in lower level jobs. Workers are commonly selected from outstanding personnel in a particular field and previous experience and training in more than one field of work frequently enhances entry prospects. Training may be given by the employer, either on the job or in formalized courses. The employee may also require training on his own initiative in technical or other schools. Depending on the occupational area, the foreman may be required to possess a licence or a certificate of compentency.
ADVANCEMENT POSSIBILITIES: Those who possess the necessary qualifications, may advance to positions of greater responsibility such as superintendents, general foremen and supervisors of foremen.
TRANSFER POSSIBILITIES: Some may transfer to other occupations in similar supervisory unit groups and work areas within Foremen Unit Groups 7180 through 9910, provided they have the necessary education, training and experience. Some may transfer to appropriate inspecting and testing occupations classified in the same minor group as the supervisory occupation.
OCCUPATIONAL TITLES: (Occupations numbered only by general category)

7180-110 to 7180-154	FOREMAN: OTHER FARMING, HORTICULTURAL & ANIMAL-HUSBANDRY OCCUPATIONS
7510-110 to 7510-126	FOREMEN: FORESTRY AND LOGGING OCCUPATIONS
7710-110 to 7710-126	FOREMEN, MINING & QUARRYING INCLUDING OIL & GAS FIELDS OCCUPATIONS
8110-110 to 8110-126	FOREMEN, MINERAL ORE TREATING OCCUPATIONS
8130-110 to 8290-118	FOREMEN: PROCESSING & RELATED OCCUPATIONS
8310-110 to 8310-122, 8350-110 to 8390-118	> FOREMEN: MACHINING OCCUPATIONS
8330-110 to 8330-126	FOREMEN: METAL SHAPING & FORMING OCCUPATIONS, EXCEPT MACHINING
8510-110 to 8510-134	FOREMEN: FABRICATING & ASSEMBLING OCCUPATIONS
8530-110 to 8530-134	FOREMEN: FABRICATING, ASSEMBLING, INSTALLING & REPAIRING OCCUPATIONS, ELECTRICAL, ELECTRONIC & RELATED EQUIPMENT
8540-110 to 8540-114	FOREMEN: FABRICATING, ASSEMBLING & REPAIRING OCCUPATIONS
8580-110 to 8580-138	FOREMEN: MECHANICS AND REPAIRMEN, N.E.C.
8590-110 to 8590-134	FOREMEN: PRODUCT FABRICATING, ASSEMBLING & REPAIRING OCCUPATIONS, N.E.C.
8710-110 to 8710-118	FOREMEN, EXCAVATING, GRADING, PAVING & RELATED OCCUPATIONS
8730-110 to 8730-122	FOREMEN: ELECTRICAL POWER, LIGHTING & WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING & REPAIRING OCCUPATIONS
8780-110 to 8780-158	FOREMEN. OTHER CONSTRUCTION TRADES OCCUPATIONS
9110-110 to 9190-110	FOREMEN: TRANSPORT OPERATING OCCUPATIONS
9310-110 to 9310-126	FOREMEN: MATERIAL-HANDLING & RELATED OCCUPATIONS, N.E.C.
9510-110 to 9510-130	FOREMEN, PRINTING & RELATED OCCUPATIONS
9530-110 to 9530-122	FOREMEN, STATIONARY ENGINE & UTILITIES EQUIPMENT OPERATING
9550-110 to 955 -118	FOREMEN, ELECTRONIC & RELATED COMMUNICATIONS EQUIPMENT OPERATING, N.E.C.
9590-110	FOREMEN, OTHER CRAFTS & EQUIPMENT OPERATING OCCUPATIONS, N.E.C.

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	4	3	4	4	4	4	4	5	5	S-M567	I-B34567	5-3	8-5	59	4501
	2		3	4	3	3				4	4						

990-B FOREMEN OCCUPATIONS (Working Foremen)

WORK PERFORMED: This chapter includes occupations concerned with supervising and co-ordinating activities or workers engaged in farming; forestry and logging; mining and quarrying; processing; machining; product fabricating, assembling and repairing; construction; and operating trnaportation, material handling, printing, utilities and communications equipment. Worker functions include: determining assignments, manpower requirements, work methods, materials and schedules required; and assigning duties to workers, interpreting work procedures and ensuring tasks are satisfactorily completed. Work activities include: requisitioning materials and supplies; hiring and training workers; setting up machines and equipment; inspecting materials received; enforcing safety regulations; preparing production reports; recommending measures to improve work methods, equipment performance, quality of products or service, and working conditions; and conferring with workers to resolve complaints and grievances.

APTITUDES AND CAPACITIES: learning ability to understand and effectively apply supervisory principles and practices and the techniques appropriate to the field of work supervised; verbal ability to communicate effectively with superiors and sub-ordinates and to understand work orders; spatial perception to understand the functional nature of machines and equipment and to interpret technical drawings; form perception to discern pertinent detail in things and objects such as drawings and finished products; eye-hand co-ordination, and finger and manual dexterity to operate machines and equipment and to use tools; capacity to perform medium to heavy work requiring the lifting of one hundred pounds maximum and carrying objects weighing up to fifty pounds.

TRAINING AND ENTRY REQUIREMENTS: 10 to 14 years of general or technical education with varying amounts of successful lower level job experience in similar fields. Some companies may accept less than 10 years of formal education where the employee has demonstrated initiative, work ability and leadership qualities in lower level jobs. Workers usually enter into supervisory work from the worker ranks, since demonstrated skill in a particular field of work is very important. Training may be given by the employer, either on the job or in formalized courses. The employee may also require training on his own initiative in technical or other schools. Depending on the occupational area, the foreman may be required to possess a licence or a certificate of compentency.

ADVANCEMENT POSSIBILITIES: Those who possess the necessary qualifications may advance to positions of greater responsibility such as superintendents, general foremen and supervisors of foremen.

TRANSFER POSSIBILITIES: Some may transfer to other occupations in similar supervisory unit groups and work areas within Foremen Unit Group 7180 through 9910, provided they have the necessary education, training and experience. Some may transfer to appropriate inspecting and testing occupations classified in the same minor group as the supervisory occupation.

OCCUPATIONAL TITLES: (Occupations numbered only by general category)

7180-110 to 7180-154	FOREMEN: OTHER FARMING, HORTICULTURAL & ANIMAL-HUSBANDRY OCCUPATIONS
7510-110 to 7510-126	FOREMEN: FORESTRY AND LOGGING OCCUPATIONS
7710-110 to 7710-126	FOREMEN, MINING & QUARRYING INCLUDING OIL & GAS FIELDS OCCUPATIONS
8110-110 to 8110-126	FOREMEN, MINERAL ORE TREATING OCCUPATIONS
8130-110 to 8290-118	FOREMEN: PROCESSING & RELATED OCCUPATIONS
8310-110 to 8310-122, 8350-110 to 8390-118	FOREMEN: MACHINING OCCUPATIONS
8330-110 to 8330-126	FOREMEN: METAL SHAPING & FORMING OCCUPATIONS, EXCEPT MACHINING
8510-110 to 8510-134	FOREMEN: FABRICATING & ASSEMBLING OCCUPATIONS
8530-110 to 8530-134	FOREMEN: FABRICATING, ASSEMBLING, INSTALLING & REPAIRING OCCUPATIONS, ELECTRICAL, ELECTRONIC & RELATED EQUIPMENT
8540-110 to 8540-114	FOREMEN: FABRICATING, ASSEMBLING & REPAIRING OCCUPATIONS
8580-110 to 8580-138	FOREMEN: MECHANICS AND REPAIRMEN, N.E.C.
8590-110 to 8590-134	FOREMEN: PRODUCT FABRICATING, ASSEMBLING & REPAIRING OCCUPATIONS, N.E.C.
8710-110 to 8710-118	FOREMEN, EXCAVATING, GRADING, PAVING & RELATED OCCUPATIONS
8730-110 to 8730-122	FOREMEN: ELECTRICAL POWER, LIGHTING & WIRE COMMUNICATIONS EQUIPMENT ERECTING, INSTALLING & REPAIRING OCCUPATIONS
8780-110 to 8780-158	FOREMEN, OTHER CONSTRUCTION TRADES OCCUPATIONS
9110-110 to 9190-110	FOREMEN: TRANSPORT OPERATING OCCUPATIONS
9310-110 to 9310-126	FOREMEN: MATERIAL-HANDLING & RELATED OCCUPATIONS, N.E.C.
9510-110 to 9510-130	FOREMEN, PRINTING & RELATED OCCUPATIONS
9530-110 to 9530-122	FOREMEN, STATIONARY ENGINE & UTILITIES EQUIPMENT OPERATING
9550-110 to 9550-118	FOREMEN, ELECTRONIC & RELATED COMMUNICATIONS EQUIPMENT OPERATING, N.E.C.
9590-110	FOREMEN, OTHER CRAFTS & EQUIPMENT OPERATING OCCUPATIONS, N.E.C.

QUALIFICATIONS PROFILE:

APT:	G	V	N	S	P	Q	K	F	M	E	C	PA	EC	GED	SVP	INTS.	TEMPS.
	3	3	3	3	3	4	3	4	3	4	4	L-H234567	I-B34567	5-3	8-5	95	4501Y
	2		4	2	2	3	4	3	4	5	5						
										3	3						

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This index of chapter and group titles together with variations in their arrangement, according to key words in the title, has been prepared to assist the user to locate specific titles and their number. Titles in capital letters are actual chapters and groups while those in initial capitals are variations.

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APPENDIX A: WORKER FUNCTIONS IN RELATION TO DATA, PEOPLE AND THINGS (DPT)

The primary purpose of the Data, People and Things (DPT) worker functions designations is to provide standard terminology for use in summarizing what a worker does on the job, through the use of meaningful verbs that are descriptive of the basic work performed. Three digits are shown after the letters DPT in the top right-hand corner of each occupational description to indicate the functions of the worker in the occupation.

The inclusion of function digits in an occupational description is based on the premise that every occupation requires a worker to function in relation to Data, People, and Things in varying degrees. These relationships can be expressed in terms of the most appropriate function in each of three categories (Data-People-Things). The functions taken together are indicative of the total level of complexity at which he must perform. At least one of the three DPT digits assigned to an occupational description appears in bold-face type. This device is used to denote those functions which are considered the most essential to that occupation.

The following examples are illustrative of DPT worker functions for specific occupations:

a. 9175-130 **DRIVER, DUMP-TRUCK** (motor trans.) has DPT digits of 68**3** with the Things function in bold-face to indicate that the function represented by the digit 3 (Driving-Operating) is the most significant of the three digits. The Data function of 6 is comparing, and the People function of 8 means No Significant Relationship.

b. The occupation of 4194-110 **HOTEL CLERK** (cater. & lodg.) with DPT functions of **36**4 has two significant worker functions - the Data function of 3 (Compiling), and the People function of 6 (Speaking-Signaling). The Things digit of 4 indicates the function of Manipulating-Operating.

The various kinds of functions are identified and defined on the following pages. They appear in three groups arranged in each instance from the relatively simple up to the more complex at the top in such a manner that each successive function attempts to include those that are simpler and exclude the more complex. As each of the functions listed in the following table may represent a range of complexity, and because of the limited number of functions in each group, their arrangement should not be considered as precisely hierarchical. For these reasons, the CCDO exercises caution in their use as verb forms in occupational descriptions.

The three broad categories of functional relationships to Data, People, and Things are as follows:

DATA (1st digit)	PEOPLE (2nd digit)	THINGS (3rd digit)
0 Synthesizing	0 Mentoring	0 Setting-Up
1 Co-ordinating	1 Negotiating	1 Precision Working
2 Analyzing	2 Instructing	2 Operating-Controlling
3 Compiling	3 Supervising	3 Driving-Operating
4 Computing	4 Diverting	4 Manipulating-Operating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking-Signaling	6 Feeding-Offbearing
7 ....*	7 Serving	7 Handling
8 No Significant Relationship	8 No Significant Relationship	8 No Significant Relationship

DATA: Information, knowledge, and conceptions related to Data, People and Things, obtained by observation, investigation, interpretation, visualization and mental creation; incapable of being touched. Written data take the form of numbers, words and symbols; other data are ideas, concepts and oral verbalization.

0 **Synthesizing:** Integrating analyses of data to discover facts and/or develop knowledge, concepts or interpretations.

1 **Co-ordinating:** Determining time, place, and sequence of operations or action to be taken on the basis of analysis of data; executing determinations and/or reporting on events.

2 **Analyzing:** Examining and evaluating data. Presenting alternative action in relation to the evaluation is frequently involved.

3 **Compiling:** Accumulating information which is usually recorded physically, but which may be stored mentally; gathering, collating, or classifying information about Data, People and Things. Reporting and/or carrying out a prescribed action in relation to the information is frequently involved.

4 **Computing:** Performing arithmetic operations and reporting on and/or carrying out prescribed action in relation to them. Does not include counting.

5 **Copying:** Transcribing, entering, or posting data.

6 **Comparing:** Understanding the readily observable functional, structural, or compositional characteristics (whether similar to or divergent from obvious standards) of Data, People, and Things.

* The functional digit 7 in the Data Table has not been used in this edition of the CCDO.

PEOPLE: Human beings; also includes animals dealt with on an individual basis.

0 **Mentoring:** Dealing with individuals in terms of their total personality in order to advise, counsel and/or guide them with regard to problems that may be resolved by legal, scientific, clinical, spiritual and/or other professional principles.

1 **Negotiating:** Exchanging ideas, information and opinions with others to formulate policies and programs and/or arrive jointly at decisions, conclusions or solutions.

2 **Instructing:** Teaching subject matter to others or training others (including animals) through explanation, demonstration and supervised practice; or making recommendations on the basis of technical disciplines.

3 **Supervising:** Determining or interpreting work procedures for a group of workers, assigning specific duties to them, maintaining harmonious relations among them and promoting efficiency.

4 **Diverting:** Entertaining others.

5 **Persuading:** Influencing others in favour of a product, service, or point of view.

6 **Speaking-Signaling:** Talking with and/or signaling people to convey or exchange information. Includes giving assignments and/or directions to helpers or assistants, but excludes ordinary conversation.

7 **Serving:** Attending to the needs or requests of people or animals, or the expressed or implicit wishes of people. Immediate response is involved.

THINGS Inanimate objects as distinguished from human beings; substances or materials; machines, tools, or equipment; products. A thing is tangible and has shape, form, and other physical characteristics.

0 **Setting Up:** Adjusting machines or equipment by replacing or altering tools, jigs, fixtures and attachments to prepare them to perform their functions, change their performance, or restore their proper functioning if they break down. Workers who set up one or a number of machines for other workers or who set up and personally operate a variety of machines are included here.

1 **Precision Working:** Using body members and/or tools or work aids to work, move, guide or place objects or materials in situations where ultimate responsibility for the attainment of standards occurs and selection of appropriate tools, objects, or materials, and the adjustment of the tool to the task require exercise of considerable judgment.

2 **Operating-Controlling:** Starting, stopping, controlling and adjusting the progress of machines or equipment designed to fabricate and/or process objects or materials. Operating machines involves setting up the machine and adjusting the machine or material as the work progresses. Controlling equipment involves observing gauges, dials and other indicators, and turning valves and other devices to control such factors as temperature, pressure, flow of liquids, speed of pumps, and reactions of materials. Set-up involves several variables and adjustment is more frequent than in tending.

3 **Driving-Operating:** Starting, stopping and controlling the actions of machines or equipment for which a course must be steered or which must be guided, in order to fabricate, process, and/or move things or people. Involves such activities as observing gauges and dials; estimating distances and determining speed and direction of other objects; turning cranks and wheels; pushing clutches or brakes; and pushing or pulling gear shifts or levers. Includes such machines as cranes, conveyor systems, tractors, furnace-charging machines, paving machines and hoisting machines. Excludes manually-powered machines, such as handtrucks and dollies, and power-assisted machines, such as electric wheelbarrows and handtrucks.

4 **Manipulating-Operating:** Using body members, tools, or special devices to work, move, guide, or place objects or materials requiring the use of hand tools or special devices. Requires a significant combination of eye-hand co-ordination, and manual and finger dexterity. Involves some latitude for judgment with regard to precision attained and selection of appropriate tool, object or material, although this is readily manifest.

5 **Tending:** Starting, stopping, and observing the functioning of machines and equipment. Involves adjusting materials or controls of the machine, such as changing guides, adjusting timers and temperature gauges, turning valves to allow flow of materials and flipping switches in response to lights. Little judgment is involved in making these adjustments.

6 **Feeding-Offbearing:** Inserting, throwing, dumping, or placing materials in or removing them from machines or equipment which are automatic or tended or operated by other workers.

7 **Handling:** Using body members, hand tools and/or special devices to work, move, or carry objects or materials. Involves little or no latitude for judgment with regard to attainment of standards or in selecting appropriate tool, object or material.

APPENDIX B: GUIDE TO QUALIFICATIONS PROFILE FACTORS

APTITUDES

G General Intelligence
V Verbal Ability
N Numerical Ability
S Spatial Perception
P Form Perception
Q Clerical Perception
K Motor Co-ordination
F Finger Dexterity
M Manual Dexterity
E Eye-Hand-Foot Co-ordination
C Colour Discrimination

Aptitude Levels

(in terms of working population)

1 Upper 10%
2 Upper Third exclusive of the Highest 10%
3 Middle Third
4 Lowest Third exclusive of the Lowest 10%
5 Lower 10%
When these levels are underlined, they are considered significant for satisfactory job performance.

PHYSICAL ACTIVITES (PA)

1. Strength (lifting, carrying, pushing, pulling) shown in terms of:
   - S - Sedentary work (10 lbs. max)
   - L - Light Work (20 lbs. max)
   - M - Medium work (50 lbs. max)
   - H - Heavy Work (100 lbs. max)
   - VH - Very Heavy Work (over 100 lbs.)
2. Climbing and/or Balancing
3. Stooping, Kneeling, Crouching and/or Crawling
4. Reachin, Handling, Fingering and/or Feeling
5. Talking
6. Hearing
7. Seeing in terms of: acuity far and near, depth perception, accommodation, colour vision and field of vision.

ENVIRONMENTAL CONDITIONS (EC)

1. Work Location
   - I - Inside
   - O - Outside
   - B - Both
2. Extremes of cold plus temperature changes
3. Extremes of heat plus temperature changes
4. Wet and/or humid
5. Noise and/or vibration
6. Hazards in terms of:
   - mechanical
   - electrical
   - burns
   - explosives
   - radiant energy
7. Atmospheric Conditions in terms of:
   - fumes
   - odours
   - dusts
   - mists
   - gases
   - poor ventilation

GENERAL EDUCATION DEVELOPMENT (GED)

Levels		Approximate Duration of Schooling
6	-	17 years plus
5	-	13 to 16 years
4	-	11 to 12 years
3	-	9 to 10 years
2	-	6 to 8 years
1	-	Up to 6 years

SPECIFIC VOCATIONAL PREPARATION (SVP)

1 - Short Demonstration Only
2 - Anything Beyond short demonstration up to and including 30 days
3 - Over 30 days up to and including 3 months
4 - Over 3 months up to and including 6 months
5 - Over 6 months up to and including 1 year
6 - Over 1 year up to and including 2 years
7 - Over 2 years up to and including 4 years
8 - Over 4 years up to and including 10 years
9 - Over 10 years

INTEREST FACTORS

1. Things and Objects	vs.	6. People and Communication of Ideas
2. Business Contact with People	vs.	7. Scientific and Technical Work
3. Routine, concrete and organized work	vs.	8. Abstract and creative work or experiences
4. Working for people for their presumed good as in the social welfare sense, or for dealing with people and language in social situations.	vs.	9. Non-social work, carried on in relation to processes, machines, and techniques
5. Work resulting in prestige or esteem of others	vs.	0. Work resulting in tangible, productive satisfaction

TEMPERAMENT FACTORS

1. Variety and Change
2. Repetitive, Short Cycle
3. Under Specific Instructions
4. Direction, Control, Planning
5. Dealing with People
6. Isolation
7. Influencing People
8. Performing Under Stress
9. Sensory or Judgmental Criteria
0. Measurable or Verifiable Criteria
X. Interpretation of ideas, facts, feelings
Y. Precise attainment of set limits, tolerances or standards